

Study finds ACL reconstruction on the rise

October 1 2009

Patients who have their anterior cruciate ligament (ACL) reconstructed are more likely to have subsequent knee surgery if they are women or are treated by a surgeon who does a low volume of ACL reconstructions, according to a study in the October 2009 TK issue of *The Journal of Bone and Joint Surgery*. The study, conducted by investigators at Hospital for Special Surgery, also found that overall, 6.5% of patients undergoing ACL surgery had to undergo another knee operation within one year.

"It is a small minority of patients who need further surgery early on, but that is a lot of trips back to the operating room considering how much surgery is done," said Robert Marx, M.D., an orthopedic surgeon in the Sports Medicine and Shoulder Service at Hospital for Special Surgery. "This is the largest study to look at factors that may affect subsequent surgeries after ACL reconstruction."

ACL injuries are common in athletes. Some studies estimate that as many as 175,000 ACL reconstructions are done each year in the United States. While investigators have studied technical aspects of the surgery and outcomes and safety in small groups of patients, few studies have examined the frequency of reconstruction and subsequent knee surgery in a large population of patients.

To remedy this, researchers at Hospital for Special Surgery turned to the Statewide Planning and Research Cooperative System (SPARCS) database. This database run by the New York State Department of Health provides a census of all hospital admissions and ambulatory

procedures within the state of New York. Investigators identified all ACL reconstructions performed between 1997 and 2006; the total was 70,547. They found that the frequency of ACL reconstruction increased from 6,178 in 1997 to 7,507 in 2006, a 21.5% increase. "The rate of ACL surgery went up dramatically during the study period," said Dr. Marx.

The investigators then tracked how many of these patients had any subsequent operation within one year or subsequent ACL reconstruction on either knee, among other factors. "The SPARCS database lets us look at a very large number of patients with longitudinal followup, so we can see what happens to them as opposed to just what happened during hospital admission. We can follow them for a few years," said Dr. Marx.

The researchers found that the frequency of subsequent surgery on either knee within one year was 6.5% (4,595 patients), and patients were more likely to have subsequent surgery if they were female or treated by a surgeon who performed a low volume of ACL surgeries.

"We know that a risk of an ACL tear is much higher in females, between two- to ten-fold, but this is the first study to show that women are at a higher risk of subsequent surgery after ACL reconstruction," Dr. Marx said.

Investigators also found that 1.9% (1,318 patients) of patients who underwent ACL reconstruction had a subsequent ACL reconstruction within one year. Patients were more likely to have a subsequent reconstruction if they were younger than age 40 and treated at a hospital that performed a low volume of ACL reconstructions.

"Younger patients under 40 are at a higher risk and that is likely related to the activity level. This has been my suspicion, but it hasn't been shown in a population this large before," explained Dr. Marx. "As we get older,

as a group we tend to do less sports and high-risk activities, so people under 40 have a higher risk of needing more ACL surgery."

Dr. Marx said he was not surprised that volume was found to be a factor tied to outcomes. "I think that like everything in surgery and medicine, practice makes perfect and the more someone does something, the better their results are going to be," he said. "Volume like many things in medicine is a factor in ACL surgery." More than 800 ACL surgeries are performed each year at Hospital for Special Surgery.

Dr. Marx pointed out that all people who tear their ACL do not need to undergo reconstruction. If a person is not an athlete playing a sport that involves cutting and pivoting activities such as soccer or basketball, they can be treated nonoperatively in some cases. There are take home messages from this paper, however, for patients who choose to undergo ACL reconstruction.

"Patients need to understand that younger individuals who undergo an ACL reconstruction have a higher risk of re-tear. The risk is not the same for all patients," said Dr. Marx. "Patients also need to know that being operated on by a lower volume surgeon has a higher risk of reoperation."

Dr. Marx, an [orthopedic surgeon](#) who specializes in ACL surgery at Hospital for Special Surgery is Professor of Orthopedic Surgery and Professor of Public Health at Weill Cornell Medical College and also Director of the Foster Center for Clinical Outcome Research at Hospital for Special [Surgery](#).

Source: Hospital for Special Surgery

Citation: Study finds ACL reconstruction on the rise (2009, October 1) retrieved 7 May 2024

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