Even A Small Loss of Knee Motion After ACL Surgery is Important

Long-term results after anterior cruciate ligament (ACL) surgery aren't always perfect. But for the majority of patients, the outcome is favorable and patients are happy with the results. In this study, the authors take a look at knee joint range-of-motion 10 to 14 years after ACL reconstruction. They found that even a small decrease in knee motion (flexion or extension) can make a big difference in the final results.

But this is much more likely if the patient had damage to the joint cartilage (meniscus and articular cartilage) at the time of the surgery. This was true even though these cartilage injuries were repaired at the time of the ACL procedure. Just over 500 patients were included in this study. Everyone had an ACL reconstruction using a portion of their own patellar tendon as a donor graft to replace the torn ACL.

Everyone went through a full rehab program. The authors do make note of the fact that rehab has changed quite a bit over the years between 1982 (when the first patients included in this study came through their clinic) and the present time. In the early years of ACL surgery, patients were progressed through rehab much more slowly than today. It could take months and months to regain knee motion. Surgeons were much more likely to remove (rather than repair) torn cartilage. Today's rehab program is called accelerated. Patients start strengthening exercises and functional activities much earlier now than back in the 1980s.

The purpose of this study was to evaluate the effect of knee motion on long-term results of ACL reconstruction. But a variety of other data was also collected. Type of surgery, date of injury, and date of surgery were recorded. The length of time between injury and surgery was used to classify injuries as acute or chronic.

Each year after their surgery, patients filled out a questionnaire about their activity level, function, pain, and level of satisfaction. Patients also came back at regular intervals to be tested. Physiotherapists who were knee specialists did the testing. They measured strength, stability, and motion. Normal knee measurements were based on the patient's uninvolved knee. For knee extension of the operated leg to be considered normal, it had to be within two degrees of the opposite knee. Knee flexion had to be within five degrees to be rated as normal. In general, patients were labeled as normal, near normal, and abnormal.

For the most part, patients' range-of-motion 10 years after surgery was the same as it had been two years after the operation. About 85 per cent of the 502 patients had a stable knee they could hop on. Strength was clearly less in those patients who didn't have full motion. The loss of knee extension was more significant than the loss of knee flexion. The longer the time between injury and surgery and the presence of cartilage damage were factors linked with lower function and decreased satisfaction years after surgery.

The authors conclude that the majority of their patients (85 to 90 per cent) had close to normal (if not fully normal) knee motion and function after ACL reconstruction. Predictive factors for a positive outcome were normal knee motion after surgery and healthy articular cartilage and intact menisci at the time of the surgery. On the downside, patients with loss of knee motion were more likely to have arthritic changes in the joint. The arthritic effects on the joint were much more obvious when other joint damage was present.

What's the take home message of a study like this? For surgeons, it's not enough to do a good job reconstructing the ruptured ACL. They must make sure any other damage to the knee is also repaired. For the physiotherapist and patient, every effort must be made to restore (regain) full motion to ensure full return of function and reduce the risk of developing painful and limiting osteoarthritic changes in the joint later.