



Shelbourne KD, Gray T. Minimum 10-year Results after Anterior Cruciate Ligament reconstruction: How the Loss of Normal Knee Motion Compounds other Factors Related to the Development of Osteoarthritis after Surgery. *Am J Sports Med* 2009;37:471 – 480.

ABSTRACT

Background: Few long-term studies exist that evaluate how the loss of normal knee range of motion affects results after anterior cruciate ligament reconstruction.

Hypothesis: Patients with normal knee motion will have higher subjective scores than patients with less than normal motion.

Study Design: Cohort study; Level of evidence 2

Methods: Patients were prospectively evaluated at >10 years postoperatively according to International Knee Documentation Committee criteria. Normal knee motion was within 2° of extension (including hyperextension) and 5° of flexion compared with the uninvolved knee. Regression analysis was performed to determine what factors affected subjective scores.

Results: Objective follow-up was obtained on 502 patients at a mean of 14.1 years postoperatively. Regression analysis showed that the most statistically significant factor related to lower subjective scores was lack of normal knee extension; loss of normal flexion was also significant. Patients who had meniscectomy or articular cartilage damage had statistically significantly lower subjective scores if they also had less than normal motion. Ninety-eight percent of patients with intact menisci, normal articular cartilage, and normal knee motion had normal radiographs. Twenty-nine percent of patients with normal motion had less than normal radiographs versus 71% of patients who had less than normal motion. The overall objective grade was normal in 48%, nearly normal in 42%, abnormal in 9%, and severely abnormal in 0.5%.

Conclusions: The loss of 3° to 5° of knee extension, to include loss of hyperextension, adversely affected the subjective and objective results after surgery, especially when coupled with meniscectomy and articular cartilage damage.