

## New Trauma is the Most Common Cause of Revision After Primary Anterior Cruciate Ligament Reconstruction – A Study from the Norwegian Knee Ligament Registry 2004-2015

**Andreas Persson, MD, NORWAY**

Knut Andreas Fjeldsgaard, MD, NORWAY

Jan-Erik Gjertsen, MD, PhD, NORWAY

Lars Engebretsen, MD, PhD, NORWAY

Asle B. Kjellsen, MD, NORWAY

Jonas Fevang, MD, PhD, NORWAY

Haukeland University hospital  
Bergen, NORWAY

### Summary:

In this registry-based study, the most common cause of revision surgery after primary anterior cruciate ligament (ACL) reconstruction was a new knee trauma, particularly for patients with hamstring ACL reconstructions with femoral suspension devices that also were more often revised within the first 2 years after the primary reconstruction.

### Abstract:

**Background:** Revision anterior cruciate ligament reconstruction (ACLR) is often used as a measure for failure after primary ACLR. However, there is limited information available describing why patients have undergone revision surgery.

**Purpose:** To describe the cause of revision and time to revision ACLR stratified by patient and surgical factors.

**Methods:** The study included all patients with a primary hamstring tendon autograft (HT) or patellar tendon autograft (PT) ACLR that had undergone revision surgery registered in the Norwegian Knee Ligament Registry from 2004 through 2015. The patients were stratified into age groups (0-20y, 20-30y and >30y), early or late revision ACLRs (<2 years or >2 years from primary ACLR) and sex. The patients with HT reconstructions were further stratified into femoral fixation groups (suspension and non-suspension device). Group differences were tested with Chi-square tests.

**Results:** A total of 764 patients were identified that had undergone revision ACLR, 141 with PT and 623 with HT. Overall, the most frequent cause of revision was a new trauma (36%) followed by graft failure (27%). Primary HT reconstructions were more often revised because of a new trauma (37% vs 30% for PT;  $p=0.09$ ), whereas PT patients were more often revised because of graft failure (35% vs 25% for HT;  $p=0.02$ ). HT patients with femoral suspension devices were more common in early revisions (58% vs 42% for non-suspension;  $p<0.001$ ) and with new trauma as the leading cause of revision (43% vs 28% for non-suspension;  $p<0.001$ ).

**Conclusion:** The most frequently reported cause of revision was a new trauma. Patients primarily treated with HT and femoral suspension device were more often revised early.