

## **Primary Total Hip Arthroplasty Instability Following Lumbosacral Fusion: What Are the Risk Factors?**

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**Introduction:** Lumbosacral fusion can influence the flexibility of the lumbar spine and can impact total hip arthroplasty (THA) stability. The purpose of this study was to evaluate the incidence and risk factors of THA dislocation after lumbosacral fusion.

**Methods:** From 2007 to 2015, we identified 231 patients who had lumbar spine fusion prior to primary THA at our institution; 15 patients had at least one dislocation postoperatively. Risk factors for dislocation were assessed on patient factors, surgical approach, number of spinal levels fused, fusion to sacrum, and radiographic positioning of the acetabular component.

**Results:** The study population was 64.5% female with an average age of 66.4 years (range 44-89). Primary THA dislocation rate in patients with a prior lumbar fusion was 6.5%. There was no difference in age between patients that dislocated versus not, but women may have a higher rate of dislocation than men (women: 8.7%, men 2.4%;  $p=0.064$ ). Patients that dislocated had a lower BMI ( $p=0.027$ ). Increased head sizes had lower dislocation rates ( $p=0.035$ ), with no dislocations in head sizes above 36 mm. There was no difference in dislocation based on cup inclination ( $p=0.34$ ), but increased cup anteversion was associated with decreased dislocation risk ( $p=0.008$ ). There was no increased risk in dislocation based on fusion to the sacrum ( $p=0.79$ ), but increasing lumbar fusion levels were more likely to result in dislocation ( $p=0.022$ ), with no reported dislocations in the 55 patients with only one fusion level.

**Conclusions:** Lumbar spine fusion prior to primary THA has a high rate of dislocation. Increasing number of fusion levels increases the risk of dislocation and increasing head size and anteversion of the cup appears to be protective. Careful attention to cup positioning should be employed in patients with lumbosacral spinal fusion.