

The Majority of Total Hip Arthroplasty Patients with a Stiff Spine Do Not Have an Instrumented Fusion

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Introduction: Total hip arthroplasty (THA) patients with limited lumbar flexion have increased rates of dislocation. An instrumented spinal fusion is a well-recognized cause that's risk increases with increasing number of levels fused. However, many patients without an instrumented fusion also exhibit abnormal spinopelvic mobility. The purpose of this study was to understand the proportion of THA patients without an instrumented fusion that have limited lumbar flexion and behave as if they are mechanically fused.

Methods: A retrospective analysis was performed on a large database of 6,340 patients undergoing primary THA. All patients had preoperative spinopelvic measurements. Lumbar lordosis was measured on standing and flexed-seated lateral radiographs, with the resulting difference defined as a patient's lumbar flexion (LF). Any instrumented fusion of the lumbar spine was observed on the lateral standing radiograph and recorded. Limited lumbar flexion (the definition of a stiff spine) was classified by $LF < 20^\circ$. The percentage of patients with an instrumented fusion and limited lumbar flexion was then determined.

Results: Of the 6,340 patients, 207 (3%) had an instrumented fusion. Of these 207 patients, only 67 (32%) had a lumbar flexion < 20 degrees. Of the combined 6,340 patients, 355 (6%) had limited lumbar flexion. Of these 355 patients, only 67 (19%) had an instrumented fusion.

Conclusions: The vast majority (81%) of THA patients with a stiff spine do not have an instrumented fusion. We recommend preoperative spinopelvic assessment of all patients undergoing THA, as only a minority of those with limited lumbar flexion have an instrumented fusion and may otherwise be overlooked. Lumbar degenerative disc disease is common in THA patients, limits the available lumbar flexion in the same way an instrumented fusion might and potentially increases the risk of dislocation in this subset of patients.