## Decreased Hip Motion is Associated with Inferior Spine Outcomes

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INTRODUCTION: Decreased motion through the lumbar spine leads to significantly higher rates of prosthetic dislocation following total hip arthroplasty (THA). However, data on the relationship between decreased hip motion and spine outcomes is not well understood. This study aims to determine if decreased hip motion is associated with patient reported outcomes in patients presenting for evaluation of their lumbar spine.

METHODS: A prospectively-collected database of consecutive patients presenting to spine clinic for evaluation of their lumbar spine at a single institution was retrospectively reviewed. Both patients who had undergone previous fusion and those presenting for initial evaluation of their lumbar spine were included. Standing and sitting lateral radiographs were measured for pelvic femoral angle (PFA), sacral slope (SS), pelvic tilt (PT), and lumbar lordosis (LL) and the change (Δ) between sitting and standing positions was calculated. Oswestry Disability Index (ODI) was recorded for each patient. Patients in the lowest 20th percent of motion for ΔPFA, ΔSS, ΔPT, and ΔLL were compared to the remaining patients. Multivariate analysis was performed controlling for age, gender, body mass index (BMI), and history of lumbar surgery.

RESULTS: Ninety-nine patients were included with an average age of 59.7±16.3 years and BMI of 28.4±5.38 kg/m2. The average ΔPFA for the cohort was 59.0±16.6°. The lowest 20th percentile for ΔPFA (mean ΔPFA 33.4°±10.7°) had an average ODI of 51.5±23.9, which was significantly greater than the remaining patients (mean ODI 33.6±19.6) ($p<0.001$). After controlling for confounders, patients who fell into the bottom 20th percentile of ΔPFA were 3.97 times more likely to have an ODI above the median (95% CI 1.22-12.93, $p=0.022$). Low ΔSS, ΔPT, and ΔLL were not found to be significantly associated with ODI (all $p>0.05$).

DISCUSSION AND CONCLUSION: Decreased hip motion is correlated with inferior patient reported outcomes in patients presenting for evaluation of their lumbar spine.