

# Minimally Invasive versus Open Surgery for Grade I Degenerative Lumbar Spondylolisthesis: Analysis Of the Quality Outcomes Database

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## Introduction

Lumbar spondylolisthesis is a degenerative condition that can be surgically treated with either open or minimally invasive decompression and instrumented fusion. Minimally invasive surgery (MIS) approaches may shorten recovery, reduce blood loss and minimize soft tissue damage with resultant reduced postoperative pain and disability.

## **Methods**

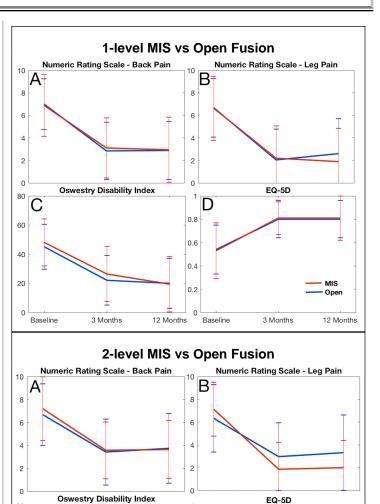
We queried the national, multi-center, Quality Outcomes Database (QOD) registry from July 2014 through December 2015 for patients undergoing posterior lumbar fusion for grade I degenerative spondylolisthesis. We recorded baseline and 12-months patient reported outcomes. Multivariable regression models were fitted for length of hospital stay, 12-month patient reported outcomes and 90-day return to work, after adjusting for an array of preoperative and surgical variables.

#### **Results**

Patients in both groups reported significant improvement in all primary outcomes (all p< .001). MIS was associated with significantly lower mean intraoperative blood loss and slightly longer operative times in both 1- and 2-level fusion subgroups. Although the length of stay was shorter for MIS 1-level cases, this was not significantly different. No difference was detected with regards to the 12-month patient reported outcomes between the one level mis versus the one level open surgical groups. However, change in functional outcome scores for patients undergoing 2-level fusion was notably larger in the MIS cohort for ODI (-27 vs. -16, p=0.1), EQ5D (0.27 vs. 0.15, p=0.08), and NRS-BP (- 3.5 vs -2.7, p=0.41); statistical significance was shown only though for NRS-LP scores (-4.9 vs. -2.8, p=0.02). On riskadjusted analysis for one level fusion, open versus minimally invasive approach was not significant for 12-month PROs, length of stay and 90-day return to work.

### **Conclusions**

Significant improvement was found in all functional outcomes in patients undergoing open or MIS fusion for lumbar spondylolisthesis. No difference was detected between the two techniques for 1-level fusion in terms of patient reported outcomes, length of stay and 90-day return to work. However, patients undergoing 2-level MIS fusion reported significantly better improvement in NRS-LP at 12 months.



D

0.2

Baseline

**Institution**QOD Vanguard Sites

3 Months

20

Baseline