Decompression Surgery versus Interspinous Devices for Lumbar Spinal Stenosis: A Systematic Review of the Literature
In this study, the authors systematically reviewed the literature to elucidate the efficacy and complications associated with decompression and interspinous devices (ISD) surgeries for lumbar spinal stenosis (LSS).

LSS is a debilitating condition affecting the lumbar spinal cord and spinal nerve roots. Currently lacking is a comprehensive report on the relative efficacy and complication rate of ISDs as they compare to traditional decompression procedures.
Methods

- The PubMed database was queried to identify clinical studies exclusively investigating decompression, exclusively investigating ISDs, and or those comparing decompression with ISDs. Only prospective cohort studies, case series, and randomized controlled trials that evaluated outcomes using the visual assessment scale (VAS), Oswestry Disability Index (ODI), or Japanese Orthopedic Association (JOA) scores were included. A random-effects model was created to assess the difference between pre-operative and 1-2 year post-operative VAS scores between ISD and lumbar decompression.
Results

- This study found 40 papers which matched our criteria. Twenty-five decompression-exclusive clinical trials with 3386 patients total and mean age of 68.7 years (range: 31-88) reported 2.2% incidence of dural tears and 2.6% incidence of postoperative infections. Eight ISD-exclusive clinical trials with 1496 patients and mean age of 65.1 (range: 19-89) reported a 5.3% incidence of postoperative leg pain and 3.7% incidence of spinous process fractures. Seven studies comparing ISDs and decompression with 624 patients found a reoperation rate of 8.3% in ISD patients vs. 3.9% in decompression patients, and dural tears in 0.32% of ISD patients vs. 5.2% decompression patients. Meta-analysis of the randomized controlled trials found that differences in pre-operative and post-operative VAS scores were not different between the two groups.
Conclusion

- Both decompression and ISD interventions demonstrate unique surgical interventions with different therapeutic efficacies and complications. The collected studies do not consistently demonstrate superiority of either procedure over the other, but understanding differences between the two techniques can help tailor treatment regimens for patients with lumbar spinal stenosis.