

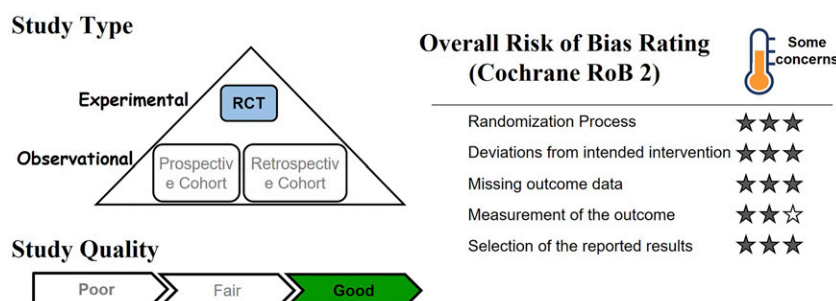
# Spine Treatment Appraisal Report (STAR): Decompression in Single-Level Degenerative Lumbar Spondylolisthesis: Do We Need to Fuse?

Joseph R. Dettori, PhD<sup>1</sup>

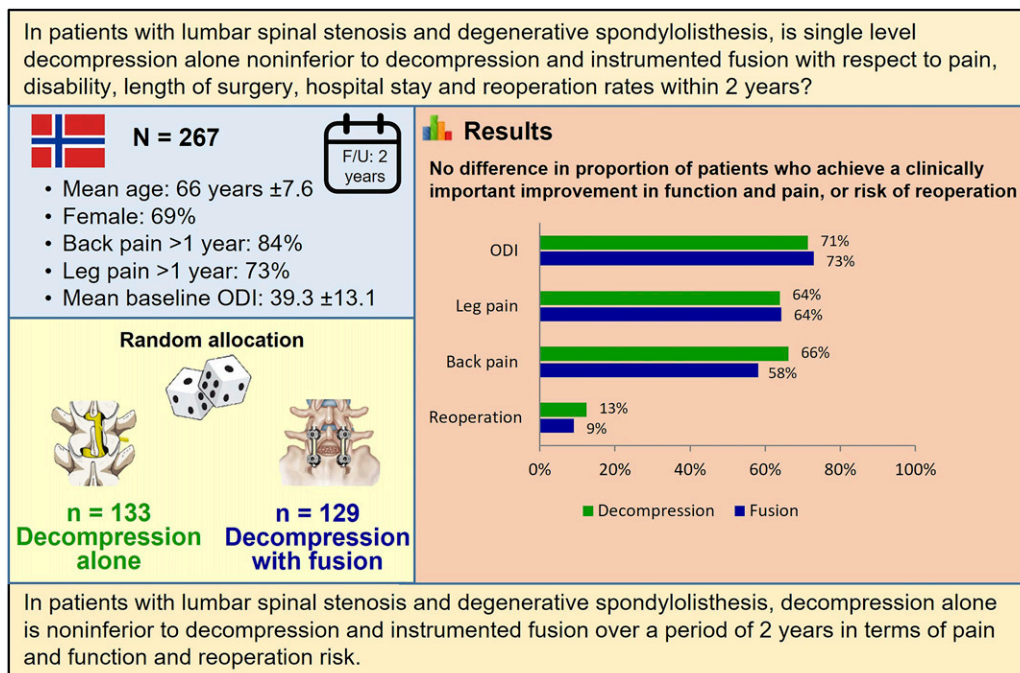
Austevoll IM, Hermansen E, Fagerland MW, Storheim K, Brox JI, Solberg T, Rekeland F, Franssen E, Weber C, Brisby H, Grundnes O, Algaard KRH, Böker T, Banitalebi H, Indrekvam K, Hellum C; NORDSTEN-DS Investigators. Decompression with or without Fusion in Degenerative Lumbar Spondylolisthesis. *N Engl J Med.* 2021 Aug 5;385(6):526-538.

## Keywords

degenerative spondylolisthesis, noninferiority, fusion, decompression, lumbar, single-level



## Visual Abstract



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### Why Is This Study an Important Topic?

Surgical management is often recommended in patients with degenerative spondylolisthesis and lumbar spinal stenosis who do not respond to nonoperative treatment and continue to have pain and dysfunction. Recent surgical management includes instrumented fusion as an adjunct to decompression. However, instrumented fusion is invasive and costly, and its efficacy remains unclear after 2 prior clinical trials. Therefore, a new randomized controlled trial was necessary.

### What Was the Primary Clinical Question?

In patients with lumbar spinal stenosis and degenerative spondylolisthesis, is single level decompression alone non-inferior to decompression and instrumented fusion with respect to pain, disability, length of surgery, hospital stay, and reoperation rates within 2 years?

### Study Characteristics

**Population:**

*Included:* Adults 18-80 years with neurogenic claudication or radicular radiating pain unresponsive to conservative care. All had spinal stenosis and degenerative spondylolisthesis solely at the stenotic level demonstrated on MRI.

*Excluded:* Grade 3 foraminal stenosis, prior surgery at the level of spondylolisthesis, former fracture, or fusion surgery in the thoracolumbar region.

**Treatment A:**

Posterior decompression alone that preserved the midline structures (n = 133, mean age = 66 years, 31% male)

**Treatment B:**

Posterior decompression with instrumented fusion with or without preservation of the midline structures (n = 129, mean age = 67 years, 32% male)

**Outcomes:**

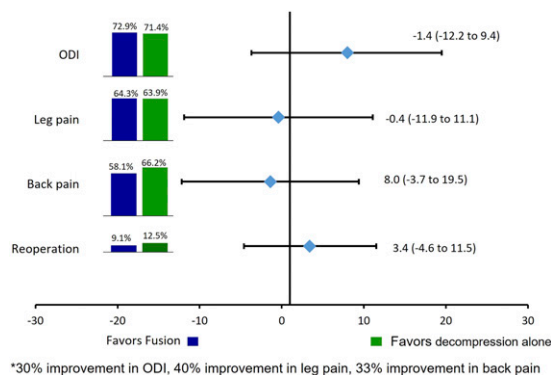
*Primary:* Reduction in ODI score of ≥30% from baseline to two-year follow-up

*Select secondary:* Zurich Claudication Questionnaire, satisfaction with treatment, Numeric Rating Scale for leg pain and back pain, EQ-5D-3L questionnaire, duration of surgery, length of hospital stay, reoperations

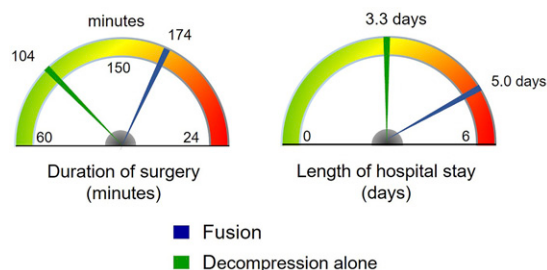
**Time:** 2 years

### Results

Result 1. Proportion and between-group differences in the proportion achieving clinically important improvement\* in function and pain



Result 2. Duration of surgery (minutes) and length of hospital stay (days)



### How Will This Affect the Care of My Patients?

In patients with degenerative single-level lumbar spondylolisthesis, decompression alone was non-inferior to decompression with instrumented fusion over 2 years.