

# Instrumented spinal arthrodesis

Instrumented [spinal arthrodesis](#) using rigid [rods](#) is currently the most widely used treatment for [degenerative diseases](#) of the [lumbar spine](#), particularly if unresponsive to conservative care. However, the elastic modulus of [titanium](#), the main metallic material used in [lumbar fusion](#) procedures, is much greater than that of bone, which may significantly change the physiological distribution of the load at the instrumented vertebral segments <sup>1) 2) 3)</sup>

Reduction, when accomplished in conjunction with wide neural element decompression and instrumented arthrodesis, is safe, effective, and durable with low rates of neurologic injury, favorable clinical results, and high fusion rates <sup>4)</sup>.

<sup>1)</sup>

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<sup>2)</sup>

Narayan P, Haid RW, Subach BR, Comey CH, Rodts GE. Effect of spinal disease on successful arthrodesis in lumbar pedicle screw fixation. *J. Neurosurg*. 2002;97(3 Suppl):277-280.

<sup>3)</sup>

Ponnappan RK, Serhan H, Zarda B, Patel R, Albert T, Vaccaro AR. Biomechanical evaluation and comparison of polyetheretherketone rod system to traditional titanium rod fixation. *Spine J*. 2009;9(3):263-267.

<sup>4)</sup>

Gandhoke GS, Kasliwal MK, Smith JS, Nieto J, Ibrahim D, Park P, Lamarca F, Shaffrey C, Okonkwo DO, Kanter AS. A Multi-Center Evaluation of Clinical and Radiographic Outcomes Following High-Grade Spondylolisthesis Reduction and Fusion. *J Spinal Disord Tech*. 2014 Oct 31. [Epub ahead of print] PubMed PMID: 25361435.

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