

## Lumbar intrafacet bone dowel fixation

The efficacy of intrafacet bone dowels in promoting lumbar fusion has not been established. A recently published study indicates a low fusion rate, along with device migration. **OBJECTIVE:** To evaluate the mechanical stability of 2 lumbar facet fixation technologies before and after repeated cyclic loading. **METHODS:** Six human lumbar specimens were implanted with both types of allograft, one at L2-3 and the other at L4-5, on a randomized basis. All specimens were subjected to pure-moment flexibility testing before and after implantation and after 2500 and 5000 cycles of flexion-extension bending. Each specimen was scanned with computed tomography before and after cyclic loading to measure device migration. **RESULTS:** Only dowel 1 resulted in a statistically significant reduction in flexion-extension range of motion at the treatment level. This reduction was significant at baseline testing ( $P = .03$ ) and after 2500 cycles of flexion-extension loading ( $P = .048$ ) but was not significant after 5000 cycles of loading. One of the bone dowels extruded posteriorly out of the joint space during baseline axial torsion flexibility testing, which was before any cyclic loading. **CONCLUSION:** The data obtained in this study do not indicate efficacy of fixation for cylindrical bone dowels in the lumbar facet joint. Significant fixation was detected only for one of the devices and was no longer present after a relatively short duration of repeated loading. Furthermore, considerable magnitudes of device migration were detected <sup>1)</sup>.

<sup>1)</sup>

Cook DJ, Yeager MS, Oh MY, Cheng BC. Lumbar intrafacet bone dowel fixation. *Neurosurgery*. 2015 Apr;76(4):470-8. doi: 10.1227/NEU.0000000000000652. PubMed PMID: 25621985.

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