

# Lumbar spinal fusion

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## **Lumbar Spinal Fusion**

*a biomechanical and biological perspective on early fusion*

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Arjan Loenen

1. Fusion rates are generally high with a relatively narrow variation two years after lumbar interbody fusion surgery, whereas large variations exist between patient groups up to half a year after surgery. (*this thesis*)
2. Forceful reduction of misaligned spinal instrumentation should be prevented during surgery as it may induce a risk of screw pullout and may cause high tissue strains in adjacent spinal segments. (*this thesis*)
3. Following lumbar interbody fusion surgery, segmental stability might be attained by formation of an uninterrupted bone bridge between vertebrae but also by direct osseointegration of an interbody cage at the vertebral endplates. (*this thesis*)
4. Synthetic bone graft substitutes may not only obviate the necessity to harvest autologous iliac crest bone graft but might also enhance early consolidation of interbody fusion. (*this thesis*)
5. Novel spinal products can shorten the time to interbody fusion which might result in reduced return-to-work time and might allow a patient to resume social activities on a shorter notice. (*this thesis*)
6. For every single treatment option (e.g., posterior, posterolateral, anterior or posterior interbody fusion, instrumented or uninstrumented fusion, instrumentation with or without pedicular fixation) articles that report a favorable or an unfavorable outcome can be retrieved from the literature (*Norbert Boos*).
7. In order to replace animal research, it is imperative to, on top of the development of alternative test platforms and the adjustment of regulations, induce a shift in the societal attitude towards efficacy and safety assessment of novel medical products.
8. Researchers and clinicians should not talk to but with each other.
9. If you don't speculate, you can't accumulate. (*Pelham Wodehouse*)
10. Don't worry about a thing, cause every little thing gonna be alright (*Bob Marley – Three little birds*)