

DR TOBY LOCH-WILKINSON FIRST IN AUSTRALIA AND OUTSIDE USA TO REDUCE BACK PAIN WITH NEW TITANIUM IMPLANT



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Brisbane Private Hospital neurosurgeon Dr Toby Loch-Wilkinson is the first in Australia and outside of the USA to use a new 3D-printed titanium spinal implant that mimics the natural porousness, functionality and stiffness of human bone. The implant helps to accelerate bone growth, speed up recovery times and reduce pain following spinal fusion surgery, which is a commonly performed procedure for degenerative lumbar spinal conditions.

The futuristic Modulus technology used by Brisbane neurosurgeon Dr Toby Loch-Wilkinson is 'coral-like' and features a unique wicking mechanism to draw the bone forming cells through it as part of the bone fusion process.

Spinal fusion is a surgical 'welding' procedure used to correct problems with the bones and nerves of the spine where two or more vertebrae are fused together to heal into a single, solid bone to treat



ABOVE: MODULUS ANTERIOR TLIF

instability or to alleviate compression of the spinal canal or nerves.

If fusion is successful, the patient's symptoms of chronic back or leg pain will be resolved. Successfully achieving a solid bony fusion is critical to the success of the procedure.

Spinal surgeons typically use high-performance plastic (PEEK) implants for spinal fusions because the material is less rigid than metal.

Whilst this previously prevented the implant from cutting into bone, the plastic spacer does not participate in the bone growth process or 'fusion'. Instead it makes the two vertebrae either side of the implant grow around rather than through it, requiring a longer time to fuse and more processes to help fusion occur.

Dr Toby Loch-Wilkinson has a particular interest in chemistry, polymers and the surface technology of spinal implants and is using the Modulus implant for Posterior Lumbar Interbody Fusion operations with great success. "I have been interested in materials science and in particular, the

mechanical and surface properties of implants since I was an undergraduate studying polymer chemistry. I'm always seeking to find better solutions for my patients suffering pain and structural problems with their spine, who require lumbar fusions," Dr Loch-Wilkinson said.

"The Modulus titanium implant is molded closer to the form and stiffness of human bone than plastic. Combined with the wicking mechanism, this results in a strong mechanical interlock between the patient's own bone and the implant, creating what I call a 'functional fusion' even before the bone has completely fused across the gap between the bones. It really is the best of both worlds.

"In my experience I have found that patients who receive this implant are reporting less pain at their post-surgery follow-up appointments than patients receiving traditional PEEK plastic implants.

"When fusion happens faster, pain is alleviated sooner, there is less requirement for pain medication and my patients can return to their normal or improved functionality, compared to when they were suffering chronic back pain from disc



ABOVE: MODULUS XLIF

degeneration, nerve pain and instability of their spines."

Low back pain affects approximately 16% of the Australian population, and rates are highest among people aged 65–74 years. Most back problems are managed non-surgically. Spinal surgery is considered for patients with severe chronic low back pain or spinal nerve pain from disc degeneration or spinal instability after more conservative treatment options have failed for three or more months. *

*<https://www.safetyandquality.gov.au/sites/default/files/migrated/4-3-Lumbar-spinal-fusion.pdf>

BELOW: MODULUS OBLIQUE TLIF



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