Mr Paul S. D'Urso
MBBS(Hons), PhD, FRACS
Neurosurgeon
Provider Nº: 081161DY

Epworth Centre
Suite 6.1 32 Erin Street
Richmond 3121
Tel: 03 9421 5844
Fax: 03 9421 4186
AH: 03 9483 4040
eMail: paul@pauldurso.com
Web: www.pauldurso.com

Spinal Stabilisation Procedure Patient Information

Degenerative changes affecting the lumbar spine, sometimes referred to as 'wear and tear', can be a cause of back pain but can also give rise to leg pain if the changes result in compression of the nearby nerve roots in the spine. Back pain can occur as a consequence of the abnormal biomechanics that result from the degenerative changes in the spine. A worn out disc at one level, or sometimes at more than one level, can affect the way the adjacent bones of the spine move in relation to each other and cause a degree of instability in the spine. Certain vulnerable parts of the disc are subjected to greater than normal loads (Fig. 1), which can also cause pain, and the same can occur through the small facet joints in the back of the spine.

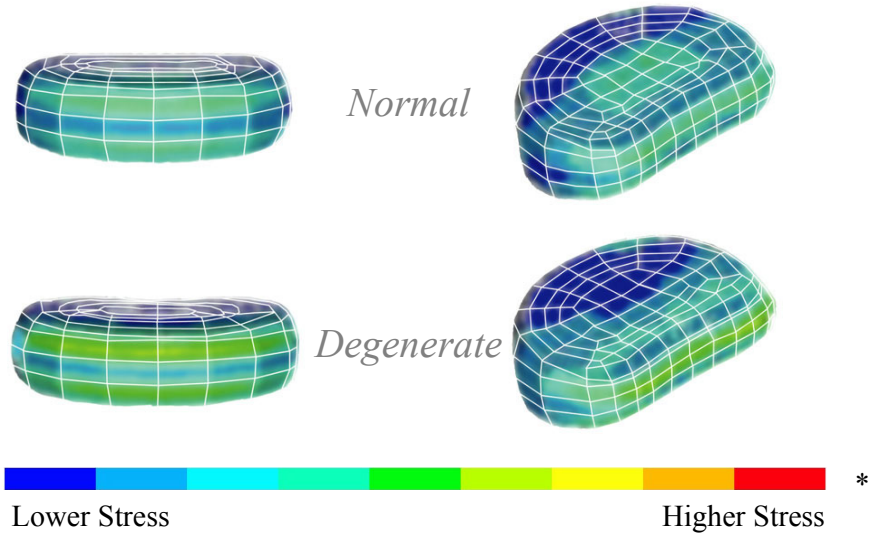

Fig. 1 Degeneration of the intervertebral disc leads to increased stress through the anterior part during flexion (left) and the back part of the disc during extension (right) (seen as the green area of higher loading)

The stabilisation procedures can help with symptoms of back pain in certain instances. The implant can help to reduce the loads through the disc (Fig. 2) and through the facet joints. The abnormal biomechanics can also be considerably improved, reducing the hyper-mobility and instability caused by the degenerative changes affecting the disc.

Fig. 2 Stabilisation implants reduce stress through the disc during flexion (left) and extension (right) movements (seen as the blue area of lower loading)

The stabilisation implant is inserted between the bony prominences that project backwards from the spine, known as the spineous processes (Fig. 3). The implant is secured to the spineous processes by means of artificial ligaments which hold the implant in place and help to provide stability but without fixing the spine rigidly. The implant and the ligaments are not seen on x-rays, but markers show the position of the implant (Fig. 4).

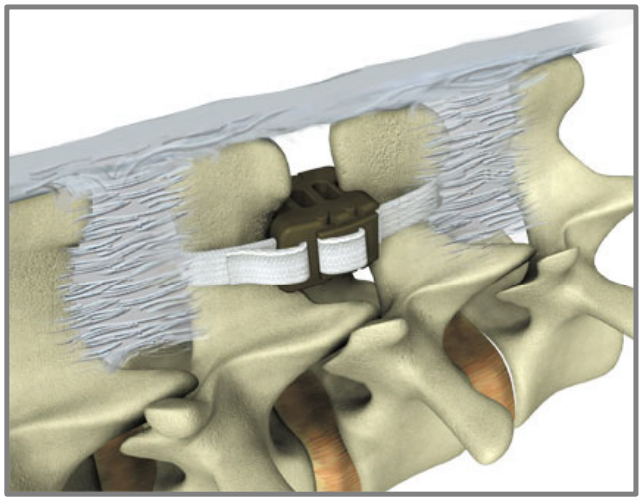

Fig.3 A Wallis implant in place between the spineous processes, with ligaments attaching to the vertebrae above and below the affected disc.

No operation for back pain can provide a guarantee of improvement in symptoms. However, the stabilisation procedure has a number of advantages. The procedure is minimally invasive, being undertaken through a relatively small incision on the back. The muscles of the back suffer only a minimal disturbance and recuperation is relatively quick. Movement at the operated part of the spine is preserved (Fig. 4), a benefit in itself but also in protecting other parts of the spine from additional stress.

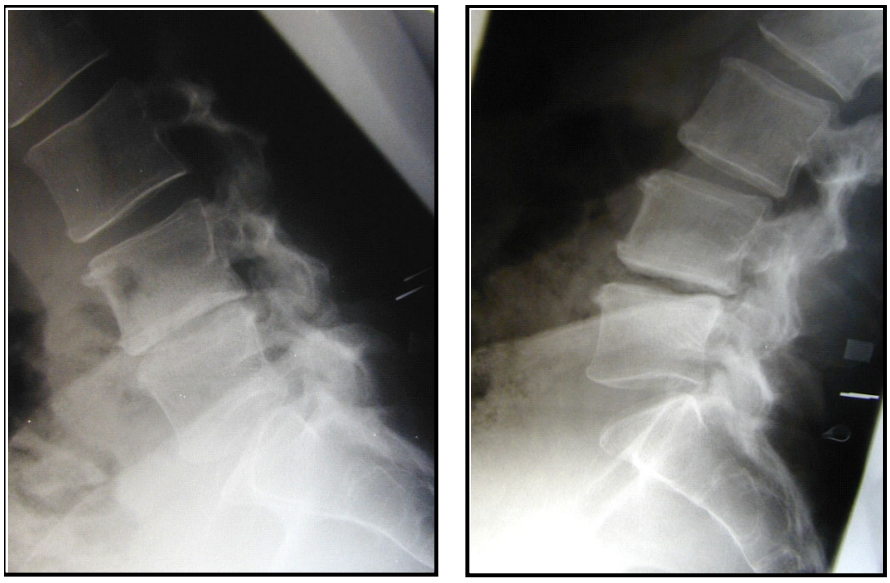

Fig. 4 X-rays taken while bending forwards (left) and arching backwards (right) three months after surgery, showing how movement is preserved.

An additional benefit of the procedure is that the operation does not damage or destroy any of the important structures of the spine. As such it does not rule out any options for the future. If the procedure proves insufficient, or if problems return at some stage, alternative operations such as a spinal fusion or a total disc replacement can still be undertaken.

Although the stabilisation procedure is clearly an attractive option in the surgical treatment of low back pain, any operation on the spine must be regarded as a major undertaking and should only be considered if symptoms are severe and cannot be improved by non-operative measures. Unfortunately there are situations, such as very advanced degenerative changes, in which the procedure is unlikely to be helpful or would be inappropriate. Similarly, if the spineous processes are deficient, weak or have been previously removed the implant could not be secured in place. Sometimes additional procedures are necessary at the same time as the implant is inserted. It may be required, for example, to remove a disc protrusion or undertake a decompression operation if nerves in the spine are compressed. In some instances it may be best to combine a fusion operation at one level of the spine with a Wallis procedure at the next level.

Clearly, each patient is different and each requires careful individual assessment and evaluation. This will include x-rays and recent MRI scans, but additional investigations may sometimes be required.

Paul D'Urso
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