Abstract  Reductions in low back pain and referred leg pain associated with a diagnosis of herniated disc, degenerative disc disease or facet syndrome have previously been reported after treatment with a VAX-D table, which intermittently distracts the spine. The object of this study was to use dermatomal somatosensory evoked potentials (DSSEPs) to demonstrate lumbar root decompression following VAX-D therapy.

Traditionally, the term “decompression” as applied to the spine has referred to nerve root decompression. This study, however, has demonstrated that most of the patients suffering from chronic low back pain and radiculopathy had multiple nerve root abnormalities based on abnormal DSSEPs, many of which would not be predicted radiographically. Successful treatment by VAX-D therapy resulted in clinical reduction in pain and improved DSSEP waveforms suggesting that nerve root decompression is occurring at multiple levels.

With VAX-D therapy, the concept of “decompression” can now be broadened to include the lumbar spine motion segment itself, with decompression not only of the nerve roots, but also the disc, facet joints and potentially, the paraspinal musculature as it is stretched and muscular spasm resolves. VAX-D therapy however addresses both primary and secondary causes of low back and referred leg pain. We thus submit that VAX-D therapy should be considered first, before the patient undergoes a surgical procedure which permanently alters the anatomy and function of the affected lumbar spine segment.

Summary

DSSEP’s are an established and effective physiologic tool for assessing single nerve root function pre- and post- operatively, and are useful as well for monitoring potential acute nerve root injury during surgical procedures.

All patients were studied bilaterally by DSSEP’s at L5 and S1 before and after VAX-D therapy. Overall, 28 nerve roots were studied before and after VAX-D Therapy. All patients had at least 50% improvement in radicular symptoms and low back pain and three of them experienced complete resolution of all symptoms. The average pain reduction was 77%.

“Surgery is often focused primarily on nerve root decompression to relieve radicular pain and any improvement in back pain follows as a secondary benefit. This secondary benefit occurs despite the fact that discectomy and laminectomy involve further disc and spine disruption. The literature is clear that not all patients benefit by surgical nerve root decompression and also, surgical patients, on average, fare no better long term that patients who are managed conservatively.

In this study, we found that multiple nerve roots appear to be decompressed in most of the patients. The DSSEP’s reviewed provide physiologic evidence that this possibility not only exists but is likely. Our study
suggests that VAX-D exerts its benefit at more than one level ipsilateral and contralateral to the direction of disc herniation.

We suggest that VAX-D therapy effectively manages mechanical low back pain with or without referred leg pain through spine segment mobilization. Spine segment motion integrity is a crucial concept and probably best explains the correlation previously found between reduced pain and improved gross spine mobility subsequent to VAX-D Therapy.

Traditionally, the term 'decompression' as applied to the spine has referred to nerve root decompression. Surgery for decompression has been directed at the radiographic sites of nerve root entrapment including the removal of herniated disc material or osteophytes. This study, however, has demonstrated that most of the patients suffering from chronic low back pain and radiculopathy had multiple nerve root abnormalities based on abnormal DSSEP’s’ many of which would not be predicted radiographically.

Successful treatment by VAX-D therapy resulted in clinical reduction in pain and improved DSSEP waveforms suggesting that nerve root decompression is occurring at multiple levels.

With VAX-D therapy, the concept of ‘decompression’ can now be broadened to include the lumbar spine motion segment itself, with decompression not only of the nerve roots, but also the disc, facet joints and potentially, the paraspinal musculature as it is stretched and muscular spasm resolves.

Surgery, by being directed at root decompression at the site of the herniation alone, may not be effective if secondary causes of pain have become predominant.

VAX-D therapy addresses both primary and secondary causes of low back and referred leg pain. We thus submit that VAX-D therapy should be considered first, before the patient undergoes a surgical procedure which permanently alters the anatomy and function of the affected lumbar spine segment. "

![Nerve Root Decompression with VAX-D Therapy](image)