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## Spinal Fusion vs. Chiropractic for Mechanical Spine Pain

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As Chien and Bajwa (2008) pointed out, one of the most common maladies in our society today is back pain and 97% of the time, the pain is considered mechanical back pain. That is pain that arises from things other than fractures, tumors or infection and is one of the leading causes of visits to primary care medical doctors. Peterson, Bolton and Humphreys (2012), Baliki, Geha, Apkarian, and Chialvo (2008), and Apkarian et al. (2004) all agreed that at any given time, upwards of 10% of the population suffers from back pain and upwards of 80% of those back pain sufferers have chronic problems. For pain to be considered chronic, it must persist for greater than 6 months.

Mulholland reported (2008)

The cause and hence the best treatment of “mechanical” low back pain remains unsolved, despite nearly a century of endeavour. It is now generally accepted that some form of failure of the intervertebral disc is central to causation. In the latter half of the twentieth century, failure of the disc leading to abnormal movement, popularly called instability, legitimised the use of fusion as treatment. However, the unpredictable results of fusion, which did not improve despite progressively more rigid methods of fusion cast doubts on the concept that back pain was movement related and that stopping movement was central to its treatment. (Pg. 619)

The only reason for fusion appeared to be that, other treatments had failed, that it was reasonable from the psychological viewpoint, and that instability was present. Instability is defined elsewhere in the book as increased abnormal movement, and this is illustrated by x-rays purporting to show abnormal rotations and various types of abnormal tilt. He accepts that such appearances may be entirely painless, but in the patient with back pain they identify the causative level, and fusion is justified. (Pg. 620)

However, whilst that fusion may be very effective in stopping movement, it was deficient in relation to load transfer. (pg. 623)

The reason load transfer is critical to normal spinal biomechanics (function) is one of remodelling and the prevention of premature and unnecessary advanced arthritic changes. Based upon Wolff’s Law, with abnormal load, the entire joint will remodel in the body’s innate goal of creating homeostasis from a structural perspective.

In support of the above consideration, Mulholland concluded:

Abnormal movement of a degenerated segment may be associated with back pain but is not causative. The concept of instability as a cause of back pain is a myth. The clinical results of any procedure that allows abnormal disc loading to continue are unpredictable.

If it is accepted that load transfer disturbance is the central issue in mechanical back pain, then treatment can be directed to remedy this. Fusion will only do this if it reliably takes over the loading function of the disc. Movement preserving procedures such as “flexible stabilization” or an artificial disc are compatible with preserving motion but with an artificial disc bony integration between plate and vertebrae would appear to be essential, not just to stop movement, but to transfer load normally. (pg. 624)

It was reported by McMorland, Suter, Casha, du Plessis, and Hurlbert in 2010 that approximately 250,000 patients annually undergo elective lumbar discectomy (spinal surgery) for the treatment of low back disc (mechanical spine) issues in the United States. The researchers did a comparative randomized clinical study comparing spinal

microdiscectomy (surgery) performed by neurosurgeons to non-operative manipulative treatments (chiropractic adjustments) performed by chiropractors. They compared quality of life and disabilities of the patients in the study. The study was limited to patients with distinct one-sided lumbar disc herniations as diagnosed via MRI and had associated radicular (nerve root) symptoms. Based upon the authors' review of available MRI studies, the patients participating in the study were all initially considered surgical candidates. Both the surgical and chiropractic groups reported no new neurological problems and had only minor post-treatment soreness. 60% of the patients who underwent chiropractic care reported a successful outcome while 40% required surgery and of those 40%, all reported successful outcomes. This study concluded that 60% of the potential surgical candidates had positive outcomes utilizing chiropractic as the alternative to surgery.

Although the previous report concluded that a chiropractic spinal adjustment is an effective treatment modality for mechanical spine pathology, a more recent study by Leemann et al. (2014), further clarifies the improvement with chiropractic care. This study considered both herniated discs and radiculopathy or pain radiating down into the leg as a baseline for analysis. The study also considered acute and chronic lumbar herniated disc pain patients. In this study, the acute onset patient (the pain just started) reported 80% improvement at 2 weeks, 85% improvement at 1 month, and a 95% improvement at 3 months. The study went on to conclude that the patient stabilized at both the six month and one year marks following the onset of the original pain. Although one might argue that the patient would have gotten better with no treatment, it was reported that after two weeks of no treatment, only 36% of the patients felt better and at 12 weeks, up to 73% felt better. This study clearly indicates that chiropractic is a far superior solution to doing nothing and at the same time helps the patient return to his/her normal life without pain, drugs or surgery.

Although the literature clearly indicates chiropractic as a superior choice for mechanical back pain for both disability and pain indicating function has normalized and that spinal fusion creates permanent abnormal load transfers leading to a higher risk of premature arthritis and spinal biomechanical failures, the consideration that was omitted in Mulholland's paper was that of aberrant neurological sequella. The arbiter for surgery vs. chiropractic care that should be strongly considered is where the delay in surgery will possibly cause permanent neurological damage.

Clinically, regardless of the mechanical failure, (including, but not limited to disc extrusions both migrated and sequestered) and/or the presentation of exquisite pain, should the patient present with intact motor and sensory function upon examination, there is less consideration of adverse issues developing from chiropractic care that will take time in the rehabilitation process. However, if there is significant motor and/or sensory loss indicating compression or significant abutment of the cord or root, then delaying surgery can increase the risk of creating long-term neurological damage. In either scenario, while managing these types of patients, the chiropractor should consider co-managing with a spine surgeon who is versed in chiropractic care and contemporary literature that has objectified both treatment outcomes.