



BACK PAIN

A Vital Link for Managing LBP: Brain and Behavior

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Author's note: The rising tide of both research and public awareness in stress-related issues understandably points our attention to the brain and central nervous system. Accordingly, it is of special interest to the chiropractic profession to be aware of the interconnectedness of the musculoskeletal, immune and hormonal systems, among others. While orthopedically oriented chiropractors have made great strides in addressing the musculoskeletal system, many of their colleagues have at the same time been successfully addressing and utilizing brain, mind, emotional and immunological mind-body connections through a variety of approaches and techniques. Most often, these concepts have been applied to augment the musculoskeletal techniques by specifically addressing the chronic recurring vertebral subluxation. How are all these systems interconnected? The answer might be like the air we breathe, so pervasive it sometimes goes unnoticed. The answer is *emotions*. All of these non-orthopedic chiropractic techniques eventually interface with the emotions. This series of articles elucidates these vital connections.

A recent meta-analysis of 47 randomized, controlled trials involving 9,211 participants concludes that spinal manipulative therapy (SMT) "produces similar effects to recommended therapies for chronic low back pain, whereas SMT seems to be better than non-recommended interventions for improvements in function in the short term."¹ In other words, the traditional clinical trials overall seem to have produced only modest beneficial results for chiropractic intervention for low back pain, in spite of international recognition and credentialing.

The neurological researcher Niels Nilsson some years ago lamented that clinical trials always seemed to produced greatly diminished results compared to what was experienced in the doctor's office.² Worse, the failure of chiropractic adjustment to hold is a common observation and has been vividly demonstrated in a clinical trial.³

What Has Been Overlooked?



The essence of what D.D. Palmer conveyed more than 120 years ago was that the spine was perceived as a dynamic entity hard-wired into the nervous system, such that the latter *network* and true scope of practice of the profession would be neglected by conventional wisdom. In other words, there would be a rejection of the framework in which chiropractic actually was conceived, as expressed by Palmer:⁴

"Life is the expression of tone. In that sentence is the basic principle of chiropractic. Tone is the normal degree of nerve tension. Tone is the expression in function by normal elasticity, activity, strength and excitability of the various organs as observed in a state of health."

Enrichment: The Biopsychosocial Model

So, how does one tap into this expanded concept? Rather than simply relieving pressure on the nerves, as some practitioners of early chiropractic might have envisioned, one addition would be to consider the role of the *mind* as well as the body.

Debates concerning the interaction of mind and body have endured for decades and have obvious relevance in health and health care. The interaction between the physical and psychosocial components of the disease was formally developed by the German psychiatrist George Engel in 1977, who stated that "neglect of this important dimension of the physician's education lies at the root of frequently voiced complaints by patients that physicians are insensitive, callous, neglectful, arrogant, and mechanical in their approaches."

This was formally christened as the biopsychosocial (BPS) model.⁵ Over time, the BPS model has gained widespread public acceptance, in addition to being adopted by the World Health Organization in 2002.⁶

Low back pain enters the picture when one considers the conclusions of Gordon Waddell in 1996. He stated that, despite greater expertise and health care resources for spinal pathologies, chronic disability for low back pain was rising exponentially in Western society. And despite differences in health care delivery systems and treatment availability in the United States and the United Kingdom, there was little difference in clinical outcomes.⁷ Clearly, there was a missing element in effectively managing chronic low back pain.

Application to Low Back Pain

At least one of those elusive elements emerged with research at the end of the 20th century.

Drawing from the description of stress as a physiological adaptation by Selye in 1936,⁸ researchers established in the late 20th century that there was a clear link between psychological variables and both back and neck pain.

Stress, distress, anxiety, mood and emotions, cognitive functioning, and pain behavior were all found to be significant factors in generating pain.⁹ This led Waddell to observe that the coexistence of chronic stress and chronic pain suggested that *stress reduction* needed to be included in the treatment of chronic, nonspecific LBP.¹⁰

He indicated that pain could not be fully assessed without the complete understanding of the individual's symptoms together with the subsequent messages conveyed to the brain from tissue damage experienced.¹¹ Specifically, Waddell was pointing out the coexistence of chronic stress and chronic pain meant that stress reduction needed to be included in the treatment of chronic, nonspecific LBP.¹⁰

Adding Cognitive Behavioral Therapy

It was only logical, therefore, that the BPS principle should have been embraced in the effort to increase the effectiveness of treating low back pain. One such approach is exemplified by cognitive behavioral therapy (CBT), focusing upon the modification of the frequency of a given (pain) behavior by means of environmental reinforcement¹² with the assumption that emotions are associated with distorted cognitions or thought patterns that could arise from chronic pain - that knowledge of the context of pain could *restructure* the cognition of that pain in terms of perception and propagation.

Specifically, CBT regards conditioned reaction to be largely self-activated on the basis of learned expectations, systematically introducing coping skills to patient to help in times of distress.¹²

Further Enrichment: Neuro Emotional Technique

Adapting the CBT approach to back pain, in turn, gave rise to an even broader multidisciplinary strategy for its management. It entailed what has become known as Neuro Emotional Technique (NET), conceived to blend chiropractic and other physical medicine interventions with aspects of mind-body principles, muscle testing, and traditional Chinese medicine. The point was that unresolved stress or emotional pressure could be a factor in maintaining a chronic or recurring condition,¹³⁻¹⁴ in that the vicious cycle of chronic pain, physical problems, and emotional reaction needed to be broken with a combination of physical sensation, acupuncture, and the freeing and extinction of dormant emotional trauma.¹⁵

The fact that the recollection of past stress-related events is sufficient to duplicate the original types of chemical reactions in the body reflects a reaction to pain that extends beyond the location of the pain.¹³ This has major implications in relation to overall health and invokes the principles of psychoneuroimmunology described previously.

References

1. Rubinstein SM, de Zoete A, van Middelkoop M, et al. Benefits and harms of spinal manipulative therapy for the treatment of chronic low back pain: systematic review and meta-analysis of randomised controlled trials. *BMJ*, 2019;364:1689.
2. Nilsson N. "Diminished Outcomes in Clinical Trials: Search for a Meaningful Outcome Measure." International Conference on Spinal Manipulation, Bloomington, Minn., 2000.
3. Rosner AL, Conable KM, Edelmann T. Influence of foot orthotics upon duration of effects of spinal manipulation in chronic back pain patients: a randomized clinical trial. *J Manipulative Physiol Ther*, 2014;37:124-40.
4. Palmer DD. *The Chiropractor's Adjuster: The Text-Book of the Science, Art and Philosophy of Chiropractic*. Portland, OR: Portland Printing House, 1910.
5. Engel GL. The need for a new medical model: a challenge for biomedicine. *Science*, 1977;196:129-36.
6. *The International Classification of Functioning, Disability and Health: Towards a Common Language for Functioning, Disability, and Health*. World Health Organization, 2002.
7. Waddell G. Low back pain: a twentieth century health care enigma. *Spine*, 1996;21:2820-5.
8. Selye H. A syndrome produced by diverse nocuous agents. 1936. *J Neuropsychiatry Clin Neurosci*, 1998;10:230-1.
9. Linton SJ. A review of psychological risk factors in back and neck pain. *Spine*, 2000;25:1148-56.
10. Waddell G, Feder G, McIntosh A, et al. *Low Back Pain Evidence Review, 1st Edition*. London, United Kingdom: Royal College of General Practitioners; 1996.
11. Waddell G. Clinical assessment of lumbar impairment. *Clin Orthop Relat Res*, 1987:110-20.
12. Thieme K, Turk DC. Cognitive-behavioral and operant-behavioral therapy for people with fibromyalgia. *Reumatismo*, 2012;64:275-85.
13. Walker S. Neuro emotional technique seminar manual. Encinitas, Calif., 2006.
14. Walker S. Neuro Emotional Xtra Techniques (NEXT). Seminar manual, 2000.
15. Monti DA, Sinnott J, Marchese M, et al. Muscle test comparisons of congruent and incongruent self-referential statements. *Percept Mot Skills*, 1999;88:1019-28.
16. Melzack R. Pain and the neuromatrix in the brain. *J Dent Educ*, 2001;65:1378-82.
17. Moseley GL. A pain neuromatrix approach to patients with chronic pain. *Man Ther*, 2003;8:130-40.

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