

Australian Spinal Research Foundation

RESEARCH TO REALITY PROJECT

Reliable Detection of Subluxation – French, Forbes and Green



1998 #1: Reliable Detection of Subluxation – French, Forbes and Green

HISTORICAL AND PROJECT CONTEXT

This project celebrates the work that the Australian Spinal Research Foundation (ASRF) has been proud to fund over the years and breaks down those findings on three levels – the research level, the practitioner level, and the layman level.

While the ASRF began back in 1977, this project begins in 1998, examining an important topic: Can we reliably detect subluxation? Back then, using our own terminology – subluxation – was a taboo in academic literature. Thus, we used the term “manipulable lesions.” It was less than ideal, but given the highly political nature of academic literature and, indeed, chiropractic history at the time, it was the best that could be done.

Thankfully, we have moved on since then and proudly used the term “subluxation” to describe what we do. At the time of writing in 2024, chiropractic is beginning to establish its worth outside of neck and back pain alone and this is backed by evidence.

Still, the issue of reliable detection of subluxation was important in 1998, and neck and back pain was the starting place. ASRF funded a project examining the Reliability of Chiropractic methods to Detect Manipulable Lesions in patients with chronic low back pain.

ABOUT THE STUDY

Three main examiners took on the job: Simon D. French, Sally Green, and Andrew Forbes. The first foray into examining inter-rater reliability of the battery of tests used to detect subluxation was undertaken by a chiropractor, a physiotherapist with extra qualifications in manipulative physiotherapy, and a third examiner with a PhD in science with a special interest in biostatistics and quantitative research in the school of public health and preventative medicine.

Three experienced chiropractors examined 19 subjects, and two experienced chiropractors examined 10 and 9 subjects, respectively. All of them were suffering from mechanical back pain. They examined the effectiveness of the following tests in reliability detecting what they then termed a manipulable lesion:

- Postural analysis
- Pain description by the patient
- Plain static erect x-rays of the lumbar spine
- Leg length discrepancy,
- Neurological tests
- Motion palpation
- Static palpation
- Orthopaedic tests

Here’s what they found, and what it all means.

The Findings

RESEARCH LEVEL

Intraexaminer reliability of the decision to manipulate a specific spinal segment was found to be moderate overall, with a Kappa value of 0.47. Interexaminer reliability, however, was only fair, with a Kappa value of 0.27. When this drilled down to the L5/S1 level, the Kappa value reduced to 0.25 and at the Sacroiliac joint, it was slight (K. = 0.04 and 0.14 respectively).

While this may appear to be a grim statistic, a later study undertaken by the New Zealand College of Chiropractic revealed that interrater reliability could be much stronger. This study has, therefore, been superseded by more recent, subluxation-based ASRF-funded research. These are listed below.

Pilot Study of Interrater and Intrarater Reliability of the Advanced Biostructural Correction Objective Synchronous Test – Dr Beau Woods and Melinda Stanner

- This study found a moderate level of inter and intra-examiner reliability when using the Objective Synchronous Test at the L5 Level. This was an improvement on the study by French, Forbes and Green.

- Woods, B., Thomas, N., Stanner, M., & Holt, K., (2023). Reliability of the Objective Synchronous Test as Used in Advanced Biostructural Correction to Assess for L5 Dysfunction (ROOSTA-L5). *Journal of Contemporary Chiropractic*. Vol. 6, Iss. 1, January 4, 2023, <https://journal.parker.edu/article/78094>

The Thermal Characteristics of Spinal Levels Identified as Having Differential Temperatures by Contact Thermocouple Measurement (Nervoscope) – Dr. Phillip Ebrall (RMIT - \$5680)

- This study found “appropriate evidence of spinal dysfunction at a particular spinal level” was detected by the use of the “Nervoscope” (a computer-assisted infrared thermography tool) was detected by investigators across the 31 participants of the study. Furthermore, this study demonstrated that the clinical entity found by use of the Nervoscope exhibited more than just a left/right thermal asymmetry. i.e It could assist in identifying dysfunctional spinal regions reliably.
- Ebrall, P., Iggo, A., Hobson, P., & Farrant, G., (1994). Preliminary Report: The Thermal Characteristics of Spinal Levels Identified as Having Differential Temperature by Contact Thermocouple Measurement (Nervo Scope). *Chiropractic Journal of Australia*. Vol. 24, Number 4., Dec 1994. <https://spinalresearch.com.au/wp-content/uploads/2024/01/LG2003-1.pdf>

A number of other ASRF-funded studies examining the reliable detection of subluxation are currently being processed. They are:

- The Accuracy, Reliability and Validity of the Thompson Sacral Leg Lift Test – Dr Kelly Holt.
- The Clinical Utility of Leg Length Inequality – Kelly Holt.
- The bio-mechanical assessment of Vertebral Subluxation using 3D Motion – Dr Imran Khan Niazi.

CLINICAL LEVEL

At the time of the original report, it was found that chiropractors could not reliably detect specific spinal segments to adjust. Interexaminer reliability was found to be slight (K 0.04) at the sacroiliac joint up to fair (0.27) at the L5/SI level.

This was later superseded by studies that found moderate to significant evidence that we can reliably detect subluxation, and further studies are currently underway.

- Beau Woods and Melinda Stanner found moderate evidence of inter and intra-examiner reliability when using the Objective Synchronous test at the L5 level.
- Dr Phillip Ebrall found evidence that spinal thermography could be used to reliably detect what was then called a dysfunctional spinal segment in academic literature but is now called a subluxation.
- Dr Kelly Holt is currently investigating the accuracy, reliability and validity of the Thompson Sacral Leg Lift Test, and the Clinical Utility of the Leg Length Inequality Test.
- Dr Imran Khan Niazi is currently investigating the biomechanical assessment of Vertebral Subluxation using 3D motion capture.

LAYMAN LEVEL

As chiropractors, we know what we feel and see when we examine and adjust you. We know what a spinal segment should feel like when it is moving properly and when your spine is free from subluxation. We also know what our objective tests tell us about posture, movement, neurology and function. But whether this can be reliably detected is a matter that makes a big difference to the confidence to you – the person under our care – and to the regulators and peak bodies that oversee chiropractic. It also confirms or informs how we educate the next generation of chiropractors.

At the time the original report was released, it found only slight to fair agreement between examiners when it came to subluxation at certain levels of the spine, pertaining to the lower back and pelvis. Science rarely sits still though, and we kept on investigating. Since then, we have found further evidence that we can reliably detect subluxations. The differences in outcomes may be due to changes in the definition of subluxation (rather than spinal dysfunction or manipulable lesion), or advances in scientific methods and equipment. Either way, we will keep investigating, thus increasing chiropractic reliability and, validity and certainty.