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# MOST COMMON METHODS USED IN COMBINATION TO DETECT SPINAL SUBLUXATION

## A Survey of Chiropractors in Victoria

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**Abstract:** The objective of this research was to identify the most common combination of methods used by chiropractors in Victoria to identify manipulable lesions or subluxations. A postal survey of chiropractors in Victoria achieved an 85% response rate and revealed that eight methods are commonly used in combination to detect subluxation. They are: visual posture analysis, pain description of the patient, plain static erect x-rays, leg length discrepancy, neurological tests, motion palpation, static palpation, orthopaedic tests. These methods have also been found to be used commonly and regarded as reliable.

**Key Indexing Terms:** Subluxation, manipulable lesion, spine, chiropractic, diagnosis.

### INTRODUCTION

Chiropractors manipulate the human spine to relieve back pain and other symptoms. The decision by chiropractors to manipulate or not is based on the use of certain diagnostic procedures which allegedly detect manipulable lesions ("subluxations") in the spine. The objective of this research was to identify the most common combination of methods used by chiropractors in Victoria to identify these manipulable lesions. The detail of the diagnostic methods sampled and the results of two other questions relating to the most commonly used and reliable methods used to detect subluxation have been published elsewhere.<sup>1</sup>

In brief the previous results<sup>1</sup> showed that there were eight preferred diagnostic methods used commonly and thought reliable by chiropractors in Victoria to detect manipulable lesions of the spine (Table 1). These were selected from sixteen methods (Table 2) which initially were the subject of a literature review.<sup>2</sup> This showed that none of these 16 methods had unequivocal reliability nor had any of the methods been shown to correlate with the manipulable lesion.<sup>2</sup>

An additional question posed in this survey asked which

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combination of methods are most commonly used to detect manipulable lesions of the spine. This question is the subject of this paper.

Table 1.

*Methods found to be used commonly and regarded as reliable as subluxation detectors*

1. Visual posture analysis
2. Pain description of the patient
3. Plain static erect x-rays
4. Leg length discrepancy
5. Neurological tests
6. Motion palpation
7. Static palpation
8. Orthopaedic tests

Table 2.

*16 Methods put to Victorian chiropractors*

1. Static palpation
2. Pain description of the patient
3. Orthopaedic tests
4. Motion palpation
5. Visual posture analysis
6. Leg length discrepancy
7. Neurological tests
8. Plain static erect x-rays
9. Kinesiological muscle testing
10. Functional x-ray views
11. SOT diagnostic tests
12. CT scans
13. MRI scans
14. Neurocalometer
15. EMG/nerve conduction studies
16. Thermography

### METHODS

A modified Dillman method<sup>3</sup> was used for the dissemination of the questionnaire, the supporting information, and the follow up procedures. All 539 registered chiropractors domiciled in Victoria initially received a card which informed them that the study was to be conducted in one week and asked for their co-operation. This was to stimulate interest in the study. One week later the sample population received an envelope containing the following items:

## MOST COMMON COMBINATION OF SUBLUXATION DETECTION METHODS

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1. A covering letter of explanation which asked for the help and co-operation of the chiropractors. It stressed that the research was important and that the results would be sent to them if requested. It also stated that the questionnaire would only take 15 minutes to complete and that their reply was anonymous. There was a summary of the objectives of the research and a number of statements outlining that no pre-conceived position had been taken by the author about the research or its results. There was also a suggested method of sending the material back if the chiropractor did not wish to fill out the questionnaire.
2. The questionnaire.
3. A stamped self-addressed envelope for the questionnaire. The stamp was an ordinary self-adhesive postage stamp.
4. A return mail card that signified that the respondent has returned the questionnaire.
5. A page of further information regarding the study. This outlined who was responsible for the survey, an offer to speak with the author, why the questionnaire was sent to all chiropractors, that it was confidential, and that a copy of results would be mailed on completion if they wished.

The envelope used was brown in colour as Roberts et al<sup>4</sup> demonstrated that brown envelopes induce a better response rate than do white envelopes in a survey of general practitioners.

A reminder card was sent after two and four weeks. After 6 weeks a letter was sent and at 8 weeks a phone call was made to non-responders and another questionnaire dispatched if necessary. The questionnaire was circulated to the study population in mid June 1994, a non-holiday period.

Sixteen diagnostic methods were chosen by the author as likely methods used by chiropractors to detect subluxation. No additional methods were added after two pilot studies, although some methods were expanded. In the event that there were other diagnostic methods used commonly in combination (and were unknown to the author) an "other" row was inserted for use by respondents.

The 16 diagnostic methods were arranged in random order and this was stated in the questionnaire. A question was put to subjects regarding which methods they most commonly used in combination to detect subluxation (Figure 1). If only one method was used respondents were asked to tick a box.

## STATISTICS

The most common combinations were calculated using cluster analysis while the preliminary question separated out those who use only one diagnostic method. SPSS quick cluster analysis<sup>5</sup> made a preliminary pass through the data to find good values for the initial cluster centres. The second and subsequent "passes" may improve the initial cluster centres.

The study was approved by the Monash University Ethics committee.

### Figure 1.

Q. In your day to day practice, which of the methods shown below do you most commonly use in combination to detect spinal subluxations? If you use only one of the methods shown, tick the first box and then the method.

Tick the relevant boxes:

- I use one method only, which is ticked below
- Visual posture analysis  
 Pain description of the patient  
 Functional x-ray views (eg. flexion/extension views)  
 Thermography  
 Plain static erect x-rays, (includes Gonstead)  
 C.T. scans  
 Leg length discrepancy (e.g. Derifield-Thompson & Activator tests)  
 Neurological tests  
 M.R.I. scans  
 Neurocalometer (or similar device)  
 EMG/nerve conduction studies  
 Motion palpation  
 Static palpation (includes osseous and soft tissues)  
 Orthopaedic tests (includes ranges of motion)  
 Kinesiological muscle testing  
 SOT diagnostic tests
- Other: .....

## RESULTS

There was a good response to the questionnaire with four hundred and sixty chiropractors responding (85%). There were 79 (15%) non-responders. There was no statistical difference found between responders and non-responders.<sup>1</sup> Two respondents did not use any method to detect subluxation leaving 458 questionnaires for analysis.

**COMMONEST COMBINATION OF DIAGNOSTIC METHODS**

Only five respondents used one method to detect a subluxation or manipulable lesion. The remaining 453 responses were analysed. The first pass through revealed the following variables:

1. Pain description of the patient
2. Leg length discrepancy of the patient
3. Motion palpation
4. Static palpation

The second pass revealed two clusters. The first contained the following diagnostic variables shown in Table 3. All other variables formed the second cluster.

*Table 3.*  
Most common methods found to be used in combination.

Diagnostic Method	p value*
1. Visual posture analysis	.000
2. Pain description of the patient (eg. my pain is here)	.000
3. Plain static erect x-rays. (includes Gonstead)	.000
4. Leg length discrepancy (eg. Derefield-Thompson & Activator tests)	.000
5. Neurological tests	.000
6. Motion palpation	.000
7. Static palpation (of osseous & soft tissues eg. for pain or spasm or misalignment)	.000
8. Orthopaedic tests (includes ranges of motion)	.000

\*Analysis of Variance

The eight diagnostic methods in Table 3 were also found to be both commonly used and “reliable” detectors of spinal subluxation.<sup>1</sup>

**DISCUSSION**

Cluster analysis of the diagnostic methods to find the commonest combination of methods identified a cluster identical to the group found to be commonly used and the same as eight of the nine regarded as reliable. The use of a question to determine whether a common combination of methods existed was suggested during the pilot stage of the project. It was unclear whether the cluster would

be the same group of methods used commonly and thought to be reliable. The result adds considerable weight to the overall results. We can now say with confidence that chiropractors in Victoria regard the diagnostic methods shown in Table 1 as the preferred methods for the detection of spinal subluxation or manipulable lesion. Not only do they use these methods commonly and regard them as reliable<sup>1</sup> they use them commonly in combination.

A previous paper<sup>2</sup> outlined and discussed the reliability of the methods tested, no method has good inter and intra rater reliability. Some authors of studies reviewed appeared to make the assumption that the methods tested by them were commonly used or considered the most reliable methods by chiropractors for detecting “spinal subluxations”. The identification of this constellation of eight diagnostic methods in this study and the previous study<sup>1</sup> helps define the directions for future research into the reliability of subluxation detection and will allow a more pragmatic study of the reliability of chiropractic diagnostic methods. Both inter and intra-rater reliability of chiropractic methods used to notionally detect spinal subluxations can now be performed with confidence as the methods being tested will truly reflect those of the chiropractic profession in Victoria.

Of course it is interesting to ponder what changes may occur to both chiropractic education and practice should some or all of the methods prove unreliable. Alternatively, if a subset of back pain patients with manipulable lesions can be reliably identified there will potentially be enormous savings in the cost of treatment. Chiropractors could be trained and able to manipulate only those with the identifiable markers of the manipulable lesion.

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