Dynamic Chiropractic

CHIROPRACTIC TECHNIQUES

Stephenson Part, II: Normal vs. Misalignment

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I discussed the Art of Chiropractic, the 1947 classic by Dr. R.W. Stephenson, in an April 7, 1997 article in *DC*. An older colleague and friend of mine (a proud Palmer graduate) in Mississippi had urged me to revisit Stephenson's technique text in light of current research. He thought I would be up to the task, since I am the principal author of the Chiropractic Theories (3rd edition, Baltimore, Williams & Wilkins, 1994).

I stated that we would continue to look at Dr. Stephenson's work, and expand on ideas that Dr. Stephenson and Dr. B.J. Palmer held that were more promising in terms of validation by current scientific knowledge.

There were some reactions from my Stephenson article. My favorite responses came from a clinician and from a researcher. A doctor in Ohio decided that no scientific knowledge accumulated in the past 50 years that I had come across, save perhaps information found in Spine, could possibly "update" Dr. Stephenson's work:

> His book speaks well for itself. Needs no updating.... Please advise your readers to read & follow Dr. Stephenson's work as is. As you read it and follow current research from Spine, you'll find you won't have time to wait between therapy since it has relatively little value. (AGS, Ohio)

My good friend Dr. Ed Owens, director of research at Life College, took issue with my article, but on totally different grounds. He holds that line marking systems in more recent articles published in Chiropractic Research do indeed show promise as outcome measures of vertebral subluxation.

> I know it's cool and scientific to be skeptical, but you may have picked up a little too much of that disease from your friend.... I was talking over the concept of skepticism vs. belief with my son Buster the other day. We decided that extreme skepticism can itself take on many of the characteristics of the religious dogmatism it strives to overcome....
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> I think these articles support the hypothesis that certain types of line drawing analyses, in particular the upper cervical Grostic based systems, where rigid protocols of radiographic procedures and analysis are employed, are usually reliable to within +/- 1.2 degrees. This makes them accurate enough to measure the magnitude of misalignments often seen in clinical practice.

Dr. Owens has an extensive background in reviewing upper cervical spine research. He was referring to new and substantial preliminary evidence for the use of some upper cervical line marking systems for assessment of vertebral misalignment or subluxation; that we will briefly discuss.

Normal Alignment Can Only Be Found by Innate

This brings us to our next discussion of Dr. Stephenson. With regard to normal alignment:

> A vertebra is in its normal position when it is in proper alignment; its articulations in proper apposition with those of the vertebra above or the one below or both; so that it does not interfere with the transmission of mental impulses.
>
> The educated mind of a surgeon or of a chiropractor does not know what this position is. No intellect knows the correct normal position of a vertebra except the Innate Intelligence of that body. Therefore, for a chiropractor to push, place or knock a vertebra into a place determined by his educated mind, is not Chiropractic but a crude attempt at surgery.[1]

Dr. Stephenson's text was in essence a training manual for chiropractors to use the toggle recoil adjustment technique. In essence, the B.J. Palmer/Stephenson theory was that only the innate wisdom inside the body (i.e., innate intelligence, hereinafter referred to as "innate") knew the exact optimal vertebral alignment for any given individual.

Hence, an ideal chiropractic adjustment involved setting the misaligned vertebra in motion ("concussion is a blow as the result of arrested momentum"), by use of a high velocity mechanical maneuver ("mechanical movement given by an adjustor with the intention of adjusting a subluxation," and "speed is the velocity of a moving body ... used in chiropractic to obtain easy cleavage and to arouse innate recoil"), and allowing innate to find the exact perfect alignment of the vertebra. ("Recoil is the term used for innate contraction of forces, in the body, in response to the adjustic concussion.")[2]

Stephenson further proposed that subluxation resulted in neurological compromise to organs ("for unless it is the cause of dis-ease, it is not a subluxation"), and neurological interference with the vertebra's "supporting tissue," including the paraspinal musculature. With regard to chronic subluxation, Stephenson held that "abnormality of the vertemere may be to such an extent that the ligaments are stretched or hardened; the intervertebral disc distorted; prolapsed or contractured muscles, etc. ... they offer friction to a change of position, even back to normal. Therefore a large part of the adjustor's force is used in overcoming this friction."[3]

Current Research of Normal and Abnormal Alignment

Although Stephenson held that only innate knew correct vertebral alignment, he and Dr. Palmer accepted that there was a scientific method by which accurate subluxation "listings" could be obtained:

> However, it can be seen that the "listing" of a subluxated vertebra can only be accurately determined from scien- tifically taken x-ray film.[4]

Researchers have debated the utility of line marking systems for mensuration of purported spinal lesions in both the medical and chiropractic literature for decades, with little agreement regarding their validity in clinical practice. Problems with radiation projectional distortion (viz. one central primary beam, others diverge), with shifting patient posture (viz. the spine is dynamic and the vertebrae and spinal curvatures are constantly moving, especially when we are upright; this makes examinations difficult to reproduce even with head clamps), with determination of the normal error associated with placement of and interpretation of line analysis, and finally with the clinical significance of spinal subluxation detected using these techniques, represent the major barriers to validation of these procedures.[5]

Despite these issues there is new evidence that some upper cervical line marking systems can be accurate for clinical use. Rochester's review of a prior investigation determined that C1 laterality, odontoid, C2 spinous, lower angle, and height factor measurements had very good reliability.[6]

Rochester and Owens[7] determined that error associated with atlas plane line analysis reached significance only when the patient to film rotation exceeded 1.5 degrees and the S-line was above 15 degrees. Further, atlas laterality did not change significantly at 1.75 degrees of image rotation and a tube angle of 25 degrees. Their conclusion was that patient rotation of that magnitude would be easily detectable by visual inspection of the nasium film and would necessitate retaking the film.

Do X-Ray Line Marking Systems Improve Clinical Outcomes?

In an analysis to determine whether improvement in upper cervical line marking was associated with improvement in clinical outcomes, Erikson and Owens[8] found significant correlations. The authors acknowledged shortcomings in generalizability, and in the fact that the study was unblinded and retrospective.

Similarly Wallace and co-workers[9] found improvement in neck pain, in disability, and in algometer readings that significantly correlated with improvement in cervical hypolordosis.

These findings should provoke further inquiry using randomized, prospective, blinded trials. Certainly these investigations go to the central issue involving our chiropractic line marking systems. It must be demonstrated that there is some clinical necessity for identifying subluxations this way (e.g., prospective randomized trial of acute trauma patients receiving nonspecific manipulation directed at painful neck joints determines that they do not sustain short or long-term clinical benefits gained by acute trauma patients receiving specific adjustments directed at reducing cervical hypolordosis as determined by lateral cervical x-rays).Even prior to the most current research, there has been mounting evidence that significant translations between flexion and extension can be accurately detected, that gross misalignment patterns such as cervical hypolordosis may be detected reliably on a lateral cervical film, and even that post-adjustment x-rays reveal improvement in hypolordosis and in retrolisthesis.[5,9,10]

Most current medical theorists hold that at best spinal manipulation improves clinical outcomes in neck and back pain and, possibly, with headaches by unknown mechanisms possibly involving improved circulation and range of motion.[5] If the chiropractic model proposed by Palmer, Stephenson and others (that specific re-alignment produces optimal patient outcomes) is to be validated, further research along the lines of Eriksen and Owens[8], and of Wallace and co-workers[9], will be necessary.

Quite simply put, if clinical outcomes of patients treated with nonspecific adjustments are not significantly worse than outcomes of patients adjusted using specific x-ray line marking analysis, then why expose patients to the radiation which is a known hazard?

It would seem that the arguments regarding reliability of the marking systems are not as important as the endpoint argument. Does the analysis improve clinical outcomes (i.e., wellness, a specific disorder or symptom, etc.)?

If researchers can determine that vertebral relationships are correlated with clinical outcomes in

controlled trials, then we can proceed to determine which methods of x-ray assessment and which adjustive techniques are most effective in achieving gains in the patient's clinical course. Then and only then may Drs. Stephenson and Palmer share the last laugh.

P.S. Please tell Buster that even skeptics can be persuaded by good clinical data.

References

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