

## Accurately Diagnosing Vertebral Segmental Dysfunction

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In this era of managed care it is important to objectively demonstrate what we say we're doing clinically. More importantly it is necessary to demonstrate effective patient outcomes.

The above diagnosis had been used by this author for several years in practice to indicate functional aberrancy of vertebral subluxation in a patient's spine. This diagnosis was based on case history, physical examination, and static plain film x-ray examination.

Physical examination included standard orthopedic, neurological, postural, and chiropractic tests. A few of these tests could be considered assessments of biomechanical capacity for normal function, although their accuracy in determining segmental function at the vertebral level has recently been shown to have questionable value. For instance gross range of motion in clinical practice has often been normal in the presence of significant localized pain. Static palpation is of obvious limited value and motion palpation, according to published studies, has a 50 percent interexaminer reliability factor.<sup>1</sup>

Static plain film x-ray taken while the patient is upright can help determine the presence of pathology or gross distortion patterns of the spine.

Doctors of chiropractic must make a giant leap, however, from the above examination procedures to a functional diagnosis of individual segments of the spine.

Since 1989 this clinician has employed the use of two additional plain film radiographs depending on the level of interest, cervical, thoracic or lumbar AP right and left lateral flexion end point stress films. Still considered a static film, the film is taken at maximum end range while the patient is instructed to hold this position. Patient position is critical for accurate assessments. With the addition of these films and the static or neutral views of the patient, a more accurate diagnosis of segmental function can be made correlating physical exam procedures.

Various authors, such as Adrian Grice, DC, and W.H. Kirkaldy-Willis, MD, have attempted to qualify types of aberrant segmental dysfunction of the lumbar spine with the use of lateral bending stress radiographs.<sup>2-4</sup>

Chiropractic clinicians Bergman, Speiser, Vahl et al., have published papers suggesting the value of using functional stress bending films to diagnose segmental dysfunction and to improve therapeutic interventions.<sup>5-7</sup> Gregory Plaughter in his text *Clinical Chiropractic* demonstrates how lateral flexion views of the cervical and thoracic spine can be used to diagnose segmental dysfunction.<sup>8</sup>

An obvious concern when taking additional radiographs is the increased patient exposure to ionizing radiation. In my office since 1989 we have utilized Kodak TMH film with Lanex Fast Screens, taking our films at 72" or 80" and more recently we installed filtration system reducing exposure factors to 91 percent below CASE (California Average Skin Exposure) values per view. With proper training all the above films can be taken on 8 x 10 plates at FFD of 72" or 80" significantly reducing skin entrance exposures to patients.

It is interesting to note that the Mercy Center Guidelines in chapter two on diagnostic imaging (recommendations 2.8.1, and 2.8.2) deal with stress radiographs. "The value of their use is rated as established in assessment of degenerative, traumatic, or postsurgical instabilities but equivocal for other conditions and circumstances." Quoting the Mercy document page xxxviii: "Procedures with any of these rating (established promising or equivocal) -- are all positive. Procedures with any of rating are approved for use and reimbursement in clinical practice."

In my opinion the diagnosis of spinal segmental instabilities can best be determined by static and stress bending views. Instabilities are often a functional problem. Dislocation can of course be seen on static films and stress films may be contraindicated in cases of trauma induced dysfunction.

The addition of plain film stress bending studies to our clinical exam as doctors of chiropractic should be utilized especially if we intend to diagnose a functional problem such as segmental dysfunction.

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