

A More Accurate Way to Diagnose Ligament Laxity

Todd Cielo, DC

As chiropractors, we consult with patients daily in our offices, maneuvering through questions and answers to formulate a plan of treatment and diagnosis. A major challenge we face as clinicians, of course, is knowing the concrete difference between subjective and objective findings.

Objective vs. Subjective Findings

Subjective findings are focused on complaints like muscle spasm, headaches, numbness, antalgic lean, radicular pain, restricted range of motion, etc. Subjective findings are the patient's complaints in their words, or their perception of pain, sensory changes, motor changes, or [range-of-motion](#) alterations. We label these subjective findings with medical terminology that fit the patient's description of complaints. The precision and accuracy comes into account when we locate the cause of these symptoms so insurance companies understand the reasons for medical necessity.

These types of symptoms need to be correlated with imaging diagnostics that explain a particular symptom, pattern or area of complaint *objectively*. Without some sort of concrete evidence that explains a patient's spinal condition, we merely have symptoms with no forensic evidence to prove medical necessity of treatment.

We need objective documentation that provides insurance companies valid reason for continued care and payment for rendered services. We also need to provide attorneys the arsenal for defending the patient's spinal injury, future medical necessity and permanent impairment to the jury.

In short, we as a profession need to sharpen our documentation and quantify our patient's injury objectively. One way we can do this by utilizing *learned treatises*. This term is defined as common literature that we as physicians commonly agree on for evaluating, diagnosing and quantifying a patient's injury in court. In utilizing such literature as the *AMA Guides* and Yochum & Rowe's *Essentials of Radiology*, we have a platform we can use to objectively measure an injury from a scientific standpoint without our opinion.

The AMA guides have DRE differentiators for this type of spinal evaluation. The differentiators are subjective and objective categories. The five common subjective qualifiers are muscle guarding, atrophy / weakness, loss of reflexes, asymmetrical range of motion, and loss of bowel function. The three objective qualifiers are electrodiagnostic evidence, bladder studies ([cauda equina](#) syndrome) and loss of motion segment integrity.

All of our patients have some form or fashion of these subjective complaints. I prefer to focus on the objective differentiators that patients can't mangle or alter in any way. So, when I go to testify in court to prove a patient's injury, I correlate subjective symptoms with objective findings that are concrete.

Motion Segment Integrity

One of the objective differentiators chiropractors fail to diagnose properly is alteration of motion segment integrity (AOMSI). The *AMA Guides* recognize linear stress views of radiographs as the best form of diagnosing George's Line. Yochum and Rowe (page 149) state that if there is a break in George's Line on a radiograph, this could be a radiographic sign of instability due to ligament laxity.

Yochum and Rowe describe specific subluxations as anterolisthesis and retrolisthesis. When these mechanical alterations of the spine occur, the posterior longitudinal ligament and anterior longitudinal ligament is stressed, disrupted and/or insufficient. These are the movements that need to be measured for verification of ligament instability.

When there is [hypermobility](#) in any given segment, we do not want to adjust that segment and increase that mobility more. Our objective is to increase function and mobility in vertebral segments that are hypomobile and locked up, causing nerve interference. Chiropractors needs these measurements that analyze these segments in the "stress" views to determine whether the vertebrae are hyper- or hypomobile and quantify in the normal (0-1 mm), abnormal (1.0-3.5 mm) or ratable (above 3.5 mm) range. These parameters are important to determine which segments to adjust, as well as document ligament laxity for the patient, insurance company and legal counsel.

For the cervical region, the *AMA Guides* state that if translation (total anterior and posterior movement) is greater than 3.5 mm (height of two quarters stacked), then the patient qualifies for category IV 25-28 percent permanent impairment (5th edition, page 392 or 6th edition, page 564). Dominant motion at the cervical and lumbar spine, where most pathology occurs, is flexion and extension (pages 378-79).

We learned this type of evaluation in chiropractic school through the lines of mensuration analysis, hand-utilizing rulers, protractors and pencils. However, this type of evaluation has a 26 percent error rate when calculated ([Siegler and Howe, JMPT, 1985](#)).

Computerized Mensuration Analysis

Fortunately, this type of evaluation also can be performed using computed radiographic mensuration analysis (CRMA). Allowing the computer to do the measuring increases our accuracy and reliability. By analyzing three simple X-ray stress views (plain film, DICOM, or DMX) in our offices, we can diagnose ligament laxity, (728.4), which is a huge value driver in the injury arena.

Ligament laxity objectively quantifies a patient's spinal injury regardless of symptoms, disc lesions, range of motion, reflexes, age or gender. This simple evaluation is often overlooked, even though it constitutes medical necessity from an injury standpoint. By simply plotting the four ends of the vertebral body's cortices, George's Line can be measured objectively, documented accurately, and the patient then can be placed in a DRE category for verification of permanent impairment. Quantification of ligament laxity (code 728.4) is a crucial element of demonstrating instabilities in a specific spinal region.

For example, consider a patient with a break in George's Line at C4-5 visually on the flexion view of my Davis series. One of my diagnoses is ligament laxity (728.4) on the patient's initial visit due to the break with the anterolisthesis. No measurement is required because ligament laxity has no parameters to follow.

Now, when you want to issue a patient an impairment rating, we utilize the *AMA Guides* for clarification and quantification of the translation in millimeters. The patient's total translation is at

3.71 mm at level C4-5; thus the patient qualifies for DRE category IV at 25 percent impairment rating.

I perform second opinions for attorneys and other doctors in my current practice. The patient has a flexion / extension series or MRI the majority of the time. When I review the findings and the radiologist documents anterolisthesis in the flexion or neutral views, that gives me medical necessity to take stress views. So, I perform my motion X-ray or DICOM views in flexion, extension, neutral and possibly APOM, if symptomatology calls for it, in mm. If I can correlate the MRI instability findings to the stress views that are measured digitally, then I can show instability of the posterior longitudinal ligament and anterior longitudinal ligament (PLL / ALL) and that there will be regression of the adjacent disc.

In so doing, not only are we documenting one of the most overlooked diagnoses for subluxation, but we also are doing the patient justice by quantifying a significant instability. This clarification and quantification will help the patient legally, objectively and most importantly, clinically.

JUNE 2013