

greater than 2.5mm in the thoracic spine and greater than 4.5mm in the lumbar spine.” The guides go on to define angular AOSMI as “...angular motion of two adjacent motion segments greater than 15° from L1-L4, 20° from L4-L5. Loss of integrity at the lumbosacral joint is defined as angular motion between L5-S1 that is greater than 25°. In the cervical spine, loss of motion segment integrity is defined as motion at the level in question that is more than 11° greater than at either adjacent level”. Impairment ratings in the 5th editions for AOSMI are 20%-23% in the lumbar and thoracic spine and 25%-28% in the cervical spine.”

The AMA Guides 6th edition is similar with the following differences.

- Cervical spine: Translation of more that 20% anterior or posterior compared to an adjacent vertebra on flexion/extension radiographs or 11° or more of angular motion in flexion radiographs.
- Thoracic spine: Translation of more than 2.5mm on flexion or extension.
- Lumbar spine: Translation of 8% anterior or 9% posterior from L1-L4. 6% anterior or 9% posterior at L5-S1. Angular motion of 15° at L1-L4 and greater than 20° and 25° for L4-5 and L5-S1 respectively.
- Impairment ratings in the 6th editions for AOSMI are 5%-33% in the Lumbar, 2%-22% in the thoracic spine and 4%-30% in the cervical spine. This unexplained huge variance is another reason why most doctors still choose to use the 5th edition over the 6th when considering AOSMI.

Now that we have the academic portion out of the way, lets move on to the practical considerations.

First, the diagnosis of AOSMI and instability must be suspected clinically, and then confirmed using flexion/extension radiographs. Some doctors, chiropractors in particular, may send the x-ray images out to 3rd party vendors to perform a computerized mensuration analysis for a fee ranging from \$250-\$1000. The goal is to have “objective” measurements done by a computer rather than by hand. It is also an impressive looking report with color graphics and assignments of impairments. This is absolutely unnecessary. I know this firsthand having purchased the software probably 20 years ago. The software does work but it is subject to all the same user errors of hand measurements. Garbage in/Garbage out. Is it worth that cost for something that can be measured with equal precision on almost any digital x-ray or PACS software? I would say no.

Next is the conversion of whole person impairments to regional impairments. The 5th and 6th edition of the guides allow for conversion of whole person spine impairments to regional spine impairments to allow for jurisdictions that require it (i.e., Connecticut

Workers Compensation). This can take an already high impairment and make it ridiculously high. For example, a 28% whole person cervical spine impairment for AOMSI in the 5th edition converts to a regional cervical impairment of 80% ($28\% / 0.35$). A 20% whole person of the thoracic spine in the 5th edition would convert to a 100% thoracic regional impairment ($20\% / 0.2$) I think the problem with regional conversion is self-evident but if you still choose to ask a doctor to convert to regional impairments, I would suggest that you ask them to show both the whole person and regional results so that it makes more sense than a ridiculously high impairment that doesn't match the patient's functional status.

Last, is the complete misapplication of what it means to have AOMSI or instability. I have recently reviewed reports for plaintiff and defense attorneys that are asking me to opine about impairments that seem to be assigned inappropriately. Here is an example: A patient has radiographically demonstrated cervical translation at C5-C6 of 2.5mm on flexion radiographs which is within the accepted normal limits of <3.5mm. The impairing doctor then states that the 2.5mm is 71% of 3.5mm and proceeds to assign a whole person impairment of 20% ($28\% \times 71\% = 20\%$). To complicate this improperly assigned impairment, the doctor then converts to a regional cervical impairment of 57% ($20\% / .35 = 57\%$) on a patient that has a normal radiographic examination by definition. The x-rays were negative for instability or AOMSI yet the doctor assigned a huge (and inappropriate) impairment. The definition of AOMSI requires that the patient be in the abnormal range and if they are not, there is no AOMSI impairment. I can only assume that these doctors that are doing this are doing so out of ignorance or greed. You decide.

Whether an impairment is based upon underlying motion segment issues, unresolved muscle spasm, disc herniation, etcetera, the basic underlying premise of an impairment is to accurately represent the underlying condition and its functional effect on the patient. Therefore, assessing an out of proportion impairment based upon inappropriate imaging studies and/or misinterpretation/misrepresentation of test results, occurring in the absence of significant related clinical findings, does not hold water, is not medically credible and is not in the best interest of the patient.

The bottom line is that if a patient does have AOMSI they should be consulted by a spine surgeon to see if surgery is required to stabilize the motor unit. I have seen spine surgeons opine in very different ways based upon the function and neurologic status but that is a topic for another newsletter. I have much more to say on the topic but I will save it for your questions which can be mailed to me at Dr.shaw@ShawChiropractic.com