Loss of Motion Segment Integrity

Loss of Motion Segment Integrity, **TRANSLATION:** Refers to the measured A-P movement of one vertebral body compared to its adjacent vertebral body in flexion vs. extension (lateral view).

Loss of Motions Segment Integrity, **ANGULAR VARIATION:** Refers to the difference in endplate angles measured in flexion vs. extension (lateral view).

The A.M.A. Guides to the Evaluation of Permanent Impairment, 5th Edition 2001, states that the following are the determining measurements, which when met or exceeded qualify for a DRE Category IV, which is assigned a Whole Person Impairment of 25% to 28%.

- AMA Guides 5th Edition – Cervical (pg. 392 Cervical Criteria)
  25-28% impairment if your patient has MSI alteration Angular of >11º
  or >3.5 mm Transitional

- AMA Guides 5th Edition – Lumbar (pg. 384 Lumbar Criteria)
  25-28% impairment if MSI alteration Angular is >15º L1-L4
  >20º L4-L5
  >25º L5-S1
  or Transitional >4.5 mm

**Other clinical references:**

Measurements over 1mm Translation and/or 7º or greater Angular Variation are considered to be clinically significant and in excess of normal flexibility of the cervical spine. [Lin R, et al. Characteristics of Sagittal Vertebral Alignment in Flexion Determined by Dynamic Radiographs of the Cervical Spine.

Green and Panjabi: Measurement of 1mm to 3mm translation and/or 7º to 11º angular variation is considered to be clinically significant and indicative of spinal subluxation and ligamentous damage.

**These same Guides tell us that:**

“Motion of individual spine segments cannot be determined by physical examination but is evaluated with flexion extension roentgenograms” pg. 379 AMA Guides

“When routine x-rays are normal and severe trauma is absent, motion segment alteration is rare; thus, flexion and extension x-rays are indicated only when the physician suspects motion segment alteration from history or findings on routine x-rays.” Pg. 379 AMA Guides

Digital Radiographic Mensuration (X-ray Digitization) is computerized enhanced generation of biomechanical line drawings of plane film radiographs. Identifying biomechanical deficits such as instability of the lumbar or cervical spine such as Loss of Motion Segment Integrity is complex and difficult. It is virtually impossible for the doctor to determine these findings by just looking at the films. The Computer aided analyses determine “exactly and accurately” what is there, making the diagnosis very accurate, thus enabling the doctor to arrive at the most conclusive diagnosis possible? This also allows the doctor to determine the most prudent course of treatment for optimal outcomes.

Many doctors are unfamiliar with computer aided digitizing analysis of spinal X-rays. However, the practice of using computers to “help” analyze radiographic films is not new it is based on the research conducted by Dr. Chung Ha Suh, at the University of Colorado under a National Institute of Health grant. Diagnostic radiographic techniques have been shown to be reliable and they provide unparalleled diagnostic benefits. This technique has undergone peer review by an independent research agency (ECRI), which is the collaborating center of the World Health Organization; the procedure was accepted for inclusion in the US government’s National Guidelines Clearing House of the Agency for Health Care Policy and Research (AHCPR). The inclusion of Radiographic digitizing is rated as “Established”.

Supreme Court Ruling in Pennsylvania relating to collecting evidenced based factual data in clinical practice.

**Smith vs. Yohe, Supreme Court of Pennsylvania 10-9-63:**

“If a physician as an aid to his diagnosis (i.e., his judgment) does not avail himself of the scientific means and facilities open to him for the collection of the BEST factual data upon which to arrive at his diagnosis, the result is not an error of judgment but negligence in failing to secure an adequate factual basis upon which to support his diagnosis or judgment.”

Radiographic Digitization is the BEST factual data to analyze Loss of Motion Segment Integrity as seen in the A.M.A. Guides to the Evaluation of Permanent Impairment. Call RGD, Inc 1-888-RGD-4902.