

## Lateral Bending Views

Deborah Pate, DC, DACBR

Biomechanical dysfunction of the lumbar spine can be revealed with lateral bending views of the lumbar spine. I am certain most of us are aware of this fact. Cassidy and Grice have reported and classified the clinical factors and biomechanical changes that can be correlated with lateral bending views. For more specific information regarding the clinical aspects of the biomechanical dysfunction of the lumbar spine, I would suggest reading their articles.<sup>1,2</sup>

I would like to review just the basic technique for performing the lateral bending views of the lumbar spine and the classification system that both Grice and Cassidy have developed.

The films should be taken with the patient sitting on a stool with the back in close contact with the bucky to avoid any forward motion of the torso. The patient should be instructed to laterally flex the spine to the limit without raising ischial tuberosities from the stool. The central ray should be centered at the level of the third lumbar segment. The reasoning behind having the patient sit rather than stand is to block out the effects of the gross musculature (erector spinae) and amplify the effects of the intrinsic musculature of the lumbar spine (quadratus lumborum, multifidus, intertransversarii, rotatores, and psoas.)

Cassidy and Grice have reported four classifications of the lumbar aberrant biomechanics in lateral flexion. Briefly the classification system is as follows:

### Type 1

Normal mechanics, spinous toward the concavity, vertebral wedging of the concavity.

### Type II

First stage of abnormal mechanics, spinous reversal or spinous fixation. The spinous processes do not rotate toward the concavity but toward the convexity. This type of motion is common on the concave side of the scoliosis when it becomes structural.

### Type III

Demonstrates normal spinous rotation toward the concavity, but reversal or lack of normal discal wedging toward the side of lateral flexion. This type of motion is usually associated with overactivity of the quadratus muscle, associated with contracture of the iliolumbar ligament, the intertransversarii muscle or internal derangement of the disc.

### Type IV

Demonstrates combined fixation or reversal of spinous and discal function. Marked multifidus

involvement or combined multifidus-intertransversarii spasm can be a cause of this motion; however ligamentous or discal derangement are most often the cause for this aberrant motion.

Lateral bending studies can be helpful when the plain films appear relatively normal, and there is a question as to the etiology of the symptoms as they relate to aberrant biomechanics.

### *References*

1. Cassidy, D: Roentgenologic examination of the functional mechanics of the lumbar spine in lateral flexion. The Journal of the Canadian Chiropractic Association, July 1976.
2. Grice A: Radiographic, biomechanical, and clinical factors in lumbar lateral flexion: Part II. JMPT, 2(1): March 1979.

*Deborah Pate, DC, DABCR*  
*San Diego, California*

FEBRUARY 1992