

Cervical Spine Dysfunction and Low Back Complaints

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Complaints of strain, stiffness or discomfort in the lumbar spine area during forward flexion at the waist can be associated with dysfunction of the cervical spine. More specifically, the cervical dysfunction is noticed at the upper or lower cervical spine levels. To evaluate and determine the contribution of the cervical spine to lumbar strain, begin with the patient seated. There are two patterns to recognize, both of which can be observed during palpation of the [posterior superior iliac spines](#) (PSIS) with the patient in the seated position.

Left PSIS Lower Than Right PSIS

Significant cervical segmental dysfunction can create a specific pattern observed with static palpation in the seated position. When palpating the PSIS bilaterally, you will notice that in the presence of a significant upper or lower cervical segmental dysfunction, the left PSIS is lower than the right PSIS. The method of palpation used is with the volar aspect of the thumbs under the PSIS. In my experience, this has been 99 percent associated with dysfunction of the upper or lower cervical spine. The nature of the dysfunction is hypomobile intersegmental dysfunction (or joint fixation).

The presence of a low PSIS on the left side and a higher PSIS on the right side indicates the presence of sacroiliac dysfunction bilaterally. When this is observed and the patient is instructed to bend (flex) forward at the waist, the left PSIS remains as is and the right PSIS raises upward, increasing the distance between the PSIS levels. The presence of a low PSIS on the left side and a higher PSIS level on the right side means that the left ilium is rotated in the PI (posterior inferior) direction and the right ilium is rotated in the AS (anterior superior) direction. This is pelvic torquing, like ringing a towel.

There is [sacroiliac ligament stress](#) bilaterally, as well as iliolumbar ligament stress, which would cause excess tension on L-5/S-1. Discomfort can be experienced as a result. When flexing forward at the waist, the right ilium moves forward and upward, but the left ilium remains fixated in its downward position. The flexion on the left side has to be compensated for with increased excessive lumbar flexion, which can cause strain and discomfort. When the patient stands and is asked to flex the hip by raising the thigh and flexed knee (as in climbing stairs), the left PSIS lowers (posterior inferior ilium motion), and the right PSIS does not move downward (PI motion) during right hip flexion.

Usually, the cervical dysfunction is at the upper cervical level. C-1/2 dysfunction is the most common dysfunction and the problem usually involves restriction of C-1 on C-2 in rotation to the right and left lateral flexion in a coupled pattern. Upon correction of the C-1/2 dysfunction by manual or instrument adjusting, the left sacroiliac PI (posterior inferior ilium) pattern is corrected. That is, in the seated position, the left and right PSIS are parallel. Upon forward flexion at the waist, both ilia move in the AS (anterior superior) direction in relation to the sacrum.

Parallel PSIS Positioning

The second pattern identified with the patient in the seated position is parallel PSIS positions. However, during seated lumbosacral forward flexion, neither the left or right ilium as monitored at the PSIS positions moves forward and superiorly in relation to the sacrum. It has been my observation that the lack of PSIS (ilium) motion in the AS (anterior superior) direction is the direct result of cervical hypomobile dysfunction. So far, my observations pertain to occiput/C-1, C-1/C-2, C-2/C-3, C-6/C-7 and C-7/T1 levels of hypomobile dysfunction.

Correction of the cervical hypomobile dysfunction by manipulation, either by hand or instrument, results in restoration of some or all sacroiliac dysfunction. In other words, correction of the cervical dysfunction results in more normalization of sacroiliac motion. After cervical correction, seated PSIS levels are parallel.

Forward lumbosacral flexion seated (or standing) results in AS (anterior superior) (upward and forward) ilia motion in relation to the sacrum bilaterally. (The techniques of physical palpation have been left out of this presentation for the sake of brevity.) The presence of sacroiliac dysfunction, during which the ilia do not move superiorly and anteriorly (AS motion) in relation to the sacrum, will result in compensatory lumbar excess motion. (Incidentally, the process of the ilium moving upward and anteriorly in relation to the sacrum during lumbosacral flexion is called [counternutation](#), as I have discussed in previous articles.)

Understanding the Connection

To repeat, ideally during L/S forward flexion, the sacral base moves posteriorly as the ilia move superiorly and anteriorly. In the presence of upper or lower cervical dysfunction, the ilia may not move upward and forward (counternutation). With the correction of the cervical dysfunction, the ilia move upward and forward during L/S flexion. If the cervical dysfunction remains uncorrected, lumbar strain can result. If the ilia do not rotate forward during L/S flexion, the lumbar spine and paravertebral musculature must compensate with increased excessive forward flexion, ultimately resulting in strain to muscles, ligaments and tendons. The entire lumbar paravertebral musculature is overstressed, and it appears that the mid to upper lumbar spinal components are overflexed. Again proper adjusting by hand or instrument to the cervical spine can release this sacroiliac fixation process, relieving the lumbar spine. This process suggests that low back complaints should be accompanied by careful evaluation of sacroiliac functioning.

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