

Persistent Low Back Pain and Leg Length Disparity

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THIS AUTHOR NOTES:

Patients with low back pain who were found to have leg length discrepancy were treated with a lift to the shoe on the short leg side. This treatment can have major or total relief of symptoms over a long period of follow-up.

"The notion that low back pain may be caused by minor leg length disparity is plausible."

A leg length difference of 12.5 mm (.5 inch) will cause a lateral tilt of the sacrum of about 4° with a compensatory scoliosis in the lumbar spine.

The resulting disparity of forces "must demand a counter effort from structures in the lower spine, presumably ligaments, muscles or both. A persistent effort or stress in such structures could well produce pain."

"The suggestion that leg length disparity can produce low back pain has been known since before the turn of the century and although lip service has been paid to it by physicians it is not a matter taught in medical schools nor addressed seriously by most clinicians. Osteopaths make much of it and irregular healers of various kinds espouse it."

When leg length discrepancy is responsible for low back pain, it is chronic low back pain.

Dr. Gofton notes short leg caused low back pain is a chronic problem that comes on within 20 or 30 minutes of being upright, and is relieved quickly with sitting. Dr. Gofton states that best treatment is the insertion of an appropriate heel lift. Additionally, he notes:

"A radiological method in which the femoral head heights are measured on an AP radiograph of the pelvis taken in the erect position has shown to be reproducible."

"Medial cartilage degeneration on the long [leg] side has been observed."

Pain at the greater trochanter is often observed with leg length discrepancy.

"Patients have commented that a troublesome ache at the base of the neck was improved together with their chronic low back pain, presumably because there is a secondary compensatory scoliotic curve in that area."

"One patient in the series, a physician, had a recalcitrant plantar wart which defied all treatment until his disparity was corrected. His back pain and the wart disappeared. Both reappeared when he omitted the lift to his shoe a year or two later and both disappeared on resumption of the correction." **[Important, this is a somato-visceral relationship]**

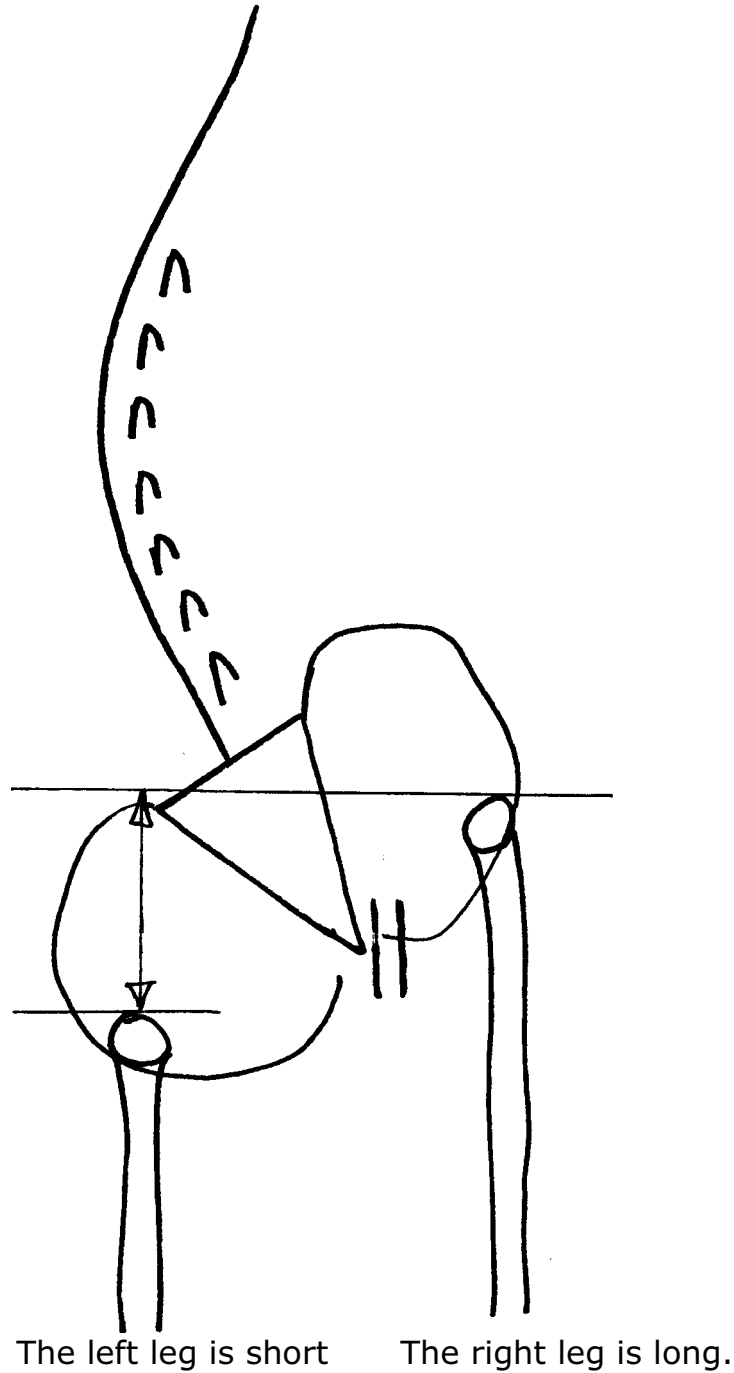
The effect of leg length disparity and osteoarthritis of the hip has been documented.

"These observations suggest that distorted biomechanics and stresses throughout the body produced by what would initially seem to be a trivial asymmetry deserve more searching investigation."

KEY POINTS FROM DAN MURPHY

- 1) "The notion that low back pain may be caused by minor leg length disparity is plausible."
- 2) Patients with low back pain and a leg length discrepancy who were treated with a shoe lift can have major or total relief of symptoms over a long period of follow-up.
- 3) A leg length difference of 12.5 mm (.5 inch) will cause a lateral tilt of the sacrum of about 4° with a compensatory scoliosis in the lumbar spine. This must demand a counter effort from structures in the lower spine, presumably ligaments, muscles or both, which "could well produce pain."
- 4) "The suggestion that leg length disparity can produce low back pain has been known since before the turn of the century and although lip service has been paid to it by physicians it is not a matter taught in medical schools nor addressed seriously by most clinicians. Osteopaths make much of it and irregular healers of various kinds espouse it." [I believe that "irregular healers" pertains primarily to us as chiropractors]
- 5) Short leg caused low back pain is a chronic problem that comes on within 20 or 30 minutes of being upright, and is relieved quickly with sitting.
- 6) "A radiological method in which the femoral head heights are measured on an AP radiograph of the pelvis taken in the erect position has shown to be reproducible."
- 7) "Medial cartilage degeneration on the long [leg] side has been observed."
- 8) Pain at the greater trochanter is often observed with leg length discrepancy.
- 9) "Patients have commented that a troublesome ache at the base of the neck was improved together with their chronic low back pain, presumably because there is a secondary compensatory scoliotic curve in that area."
- 10) "One patient in the series, a physician, had a recalcitrant plantar wart which defied all treatment until his disparity was corrected. His back pain and the wart disappeared. Both reappeared when he omitted the lift to his shoe a year or two later and both disappeared on resumption of the correction." **[Important, this is a somato-visceral relationship]**
- 11) The effect of leg length disparity and osteoarthritis of the hip has been documented.

Figure 1: Posterior to Anterior View From Behind



The sacrum is lower on the side of the short leg (left in this drawing).

The spinal column initially tilts towards the short leg, then compensates back to the midline. Consequently, the spinal convexity is towards the short leg, and the spinal concavity is towards the side of the long leg.

The lumbar spinous processes (posterior) rotate towards the long leg. The pubic symphysis (anterior) also rotates towards the long leg. The consequent counter-rotational forces abnormally stress the L5 intervertebral disc.