



## Hip Height Asymmetry & Short Leg Syndrome

One area of clinical practice that is often confusing to patients is the subject of hip height asymmetry creating “*short leg syndrome*” & how this phenomenon can have a negative effect on the knees, hips & back.

Many practitioners who commonly utilize the "*Derifield-Thompson*" test of comparing leg lengths with the patient non-weight bearing on the table often do not adequately explain to their patients that leg-length inequality is usually only a functional difference – a result of anatomic imbalance, rather than a true difference in the length of the bones and that these symmetry discrepancies will often produce alignment & biomechanical dysfunctions in the knees, hips & spine. Treatment of the leg length inequality is paramount in the correction of compensatory knee, hip & spinal conditions. Anatomical leg-length inequality (LLI) is often overlooked on initial examination. As a result, LLI can have a significant effect on the knees, pelvis & spine from both an anatomical & biomechanical perspective.

The advantage of examining the lumbar spine from an Anterior-Posterior [AP] perspective [see X-Ray] for all new patients is that one can make a comprehensive structural & postural exam with a patient, beginning with the feet and ankles & working up to further issues that result in the knees, hips & spine. Ignoring this essential first step in examination may result in many overlooked factors contributing to hip & spinal conditions. Leg length inequality can be easily seen by measurements made on an AP X-Ray. Conversely, anatomic hip height inequality can also be evaluated by viewing ankle/heel discrepancy in a non-weight bearing patient.



It seems universally accepted that the only accurate measurement for LLI is an erect A-P pelvic X-ray with center beam through the top of the femoral heads. Great care should be taken in proper patient placement and posture. One should also be aware of the effect asymmetry of the 26 pedal bones which make up the 5 arches in each foot may have on leg-length measurement. A lateral X-ray of each foot & ankle often indicates the functional cause for hip height asymmetry.

To compensate for such a development, I recommend custom-made bi-lateral orthotics to hold the 52-foot bones in the proper alignment combined with a treatment plan consisting of manipulation to the lumbar spine, hips and knees. Once good imaging has been secured, corrective orthotics can be made by measuring the alignment of the 52-foot/ankle bones, assessing misalignment and constructing the orthotic to move & hold



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the proper alignment while simultaneously absorbing vertical [Y-Axis] shock distribution to the knees, hips & lumbar spine.

The next consideration is how much leg-length inequality is clinically significant in the evaluation & treatment of knee, hip & [L5/S1] lumbar spine conditions.

One could reasonably question the absolute relevance of studies that relate LLI only to conscious pain. Some studies have identified as much as 75 percent incidence of LLI in patients suffering chronic low back pain, and others state that even a few millimeters of asymmetry may constitute a primary or contributing cause for low back conditions & advanced degenerative change in the lumbar spine.

Proper construction of orthotics to correct this condition is another age-old debate. Creating symmetry in the entire body starting from the foundation & working up is the goal. Therefore, asymmetrical lifting is not recommended as it may adversely effect alignment & biomechanics of the knees, hips & lumbar spine [and discs]. Creating asymmetrical lifting may errantly and permanently set the knees, hips & spine in the position of biomechanical deformity.

Beyond this limit, provided there has not been an excessive time period (decades) of walking in adaptive compensation correction of lower extremity asymmetry resulting in knee, hip & spinal misalignment may be achieved.

To identify LLI and other structural/postural abnormalities by first making a comprehensive visual examination is the duty of all who specialize in neuromusculoskeletal disorders. Correctly measuring through X-ray & then addressing LLI by orthotic therapy relieves chronic postural stressors and decreases the probability of degenerative knee, hip & lumbar spinal change over a lifetime. Additionally, when applied correctly, orthotic therapy may help greatly in reducing the biomechanical stresses that cause chronic knee, hip & low back pain.

For more information or to avail of custom-made bilateral orthotics simply ask;

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