



How To Determine When You Should You Use

Heel Lifts

by Dr. Arthur B. Gross

Low back pain (LBP) is a considerable health and socioeconomic problem affecting 70% to 80% of adults at some time in their lives.¹ Friberg has determined that about 43.5% of the adult population have uneven leg length, but found that of the low back pain patients, 75.4% had leg length inequality of 5mm or more.²

In the United States there are approximately 320 million people, of which about 243 million are over 19 years of age. And, of that 192 million people (age 19 and above, with back pain) only 60% will seek professional help. Consequentially, there are about 115.2 million back pain patients who will seek professional help, be it from a general practitioner, orthopedic specialist, osteopath, physiatrist, chiropractor, physical therapist, acupuncturist, et al.

Giles states that he has demonstrated a 75.4% reduction of low back, hip, and sciatic pain in the short leg cases of less than 10 millimeters by placing a lift under the short leg.³

One can assume that approximately 86.4 million people with lower back pain could possibly receive a great deal of relief, if not total elimination, of their back pain just by placing a heel lift of a predetermined thickness under the heel on the side of the short leg. Unfortunately, there are few practitioners, who treat back pain, who fully understand the use and application of heel lifts. It is a conservative estimate

that approximately 1.85 million heel lifts were dispensed to the healing arts in 2014. Heel lifts are usually given to patients in multiples of 2 on average. Therefore, about 925,000 back pain patients received heel lifts as part of their regimen of care. But according to Friberg's study, there were probably 96 million people who should have received a heel lift as part of their care regimen. It would appear that about 90% of the back pain patients' leg deficiencies were either overlooked, or not taken seriously.

The application of heel lift therapy is a safe, non-invasive, and inexpensive alternative to methods of treatment that have already proven unsatisfactory. When heel lifts are used effectively, the result is a quicker, more normal restoration of spinal balance, muscle tone, posture, and improved performance.

Understand that heel lifts are used in an effort to correct the influences of an "anatomical leg deficiency." Orthotics are used in an effort to correct the influences of a "functional leg deficiency." They should be differentiated only in the standing postural evaluation.

Anatomical short leg is the difference in the length of the structures (femur, tibia and fibula, or femoral neck) from the ground to the femur head compared between the left and right leg. Functional short leg is the difference in the alignment of the structures from the ground to the femur head compared between the left and right leg. The

cause of functional short leg is normally excessive unilateral pronation of the foot or ankle, but it can also be caused by a valgus or varus unilateral knee.

To determine if a heel lift should be used in the treatment regimen, it is important to take a good history and perform a postural examination of the patient.

In the history phase, determine if the patients back pain is of a chronic nature. Have there been frequent exacerbations? Has there been surgery on the lower extremities? What about fractures to the legs, ankles, or feet? Did they have any serious falls while growing up? Have they been treated for this back pain before? Did the previous treatment help, but after a while did the pain return?

Examination should include the following:

Standing Examination

- ▶ Position the patient in bare or stocking feet with their feet about 8 inches apart.
- ▶ Instruct them to stand in a normal, relaxed position with the knees extended.
- ▶ Visually examine the feet and ankles to determine if there is excessive unilateral pronation.
- ▶ Palpate under the arches of both left and right foot to determine any drop of the longitudinal arch.

- ▶ Look at the back of the knees and determine if there is a valgus deformity. Is there a knee flex?
- ▶ Place your hands across the top of the iliac crest and determine if there is unleveling of the pelvis.
- ▶ Look at the sacral dimples (over the ala of the sacrum) for unleveling.
- ▶ Is there a flank fold? (Just above the iliac crest there may be a fold or indentation of the flank on the long leg side.)
- ▶ Can you visualize any lumbar curvature?
- ▶ Check lumbar range of motion. Is there more lateral bending on one side or the other? On flexion, are the lumbar erectors more pronounced on one side than the other? Also, is there a rib hump?
- ▶ Is there an elevated scapula? Is one shoulder higher than the other?
- ▶ Is there deviation of the head or neck to one side?

Test to differentiate anatomical versus functional leg deficiency

If there is un-leveling of the pelvis or sacral dimples, simply have the patient rock up on the lateral aspect of both feet (full supination). If the pelvis levels out or the sacral dimples level out in this position then you are looking at a functional short leg (think orthotic). If the pelvis remains un-level in that position, an anatomical short leg is present



If you have ruled out a functional short leg, and have determined that there is an anatomical leg deficiency, then the next step in your examination is postural radiographic examination of the lumbar spine and pelvis in the standing position.

(think heel lift). If the pelvis tends to level off, but not completely, then you are dealing with some anatomical and some functional leg deficiency (think both, orthotic along with a heel lift).

If you have ruled out a functional short leg, and have determined that there is an anatomical leg deficiency, then the next step in your examination is postural radiographic examination of the lumbar spine and pelvis in the standing position.

Radiographic methods are the gold standard for measuring LLI, as compared to clinical methods.⁴ However, when evaluating a patient for a heel lift, we need to determine more than just LLI. We need to see the level of the pelvis, the level of the sacrum, the level of L5, the shape of L5, and the lateral deviation of the lumbar spine. The best methods to evaluate those areas are with the following films.

Views that are needed to determine the use of heel lifts

1. A-P Lumbo-Pelvic Positioning
 - ▶ Foot separation – feet 8 inches apart
 - ▶ Position of the knees – locked in extension
 - ▶ Central ray – on the umbilicus
 - ▶ 40 inch or 72 inch focal film distance

The A-P view will reveal femur head heights, pelvic heights, pelvic obliquity, the levelness of L5, and lateral deviation of the lumbar spine.

2. Tilt up view of the sacral base
 - ▶ Do this view immediately after the A-P
 - ▶ Tilt tube head up 30 degrees
 - ▶ Foot separation – feet 8 inches apart
 - ▶ Position of the knees – locked in extension
 - ▶ Primary ray midway between the pubes and umbilicus
 - ▶ Use an 8 x 10 inch cassette
 - ▶ Increase kvp by 10.

The tilt up view will visualize the SI joints, plateau of the sacrum, L5 disc space, and the configuration of the body of L5.

3. Lateral Lumbar

This view shows you disc height, facet positioning, vertebral body positioning, sacral angle, and lumbar spine center of gravity or Ferguson's perpendicular.

When you evaluate these films for the purpose of using heel lifts, look at them from a structural point of view. Will a lift give the spine better balance and take the stresses off of the L4-L5, L5-S1 vertebral motor units? Where is the primary inferiority? Is it unleveling of the femur heads, unleveling of the sacrum, or unleveling of L5 that makes the spine deviate left or right? Will a lift help shift and support this patient's lumbar spine back toward the mid-line? Ask yourself these questions, and then you will be able to determine the approximate amount of lift to use as well as what side to use it on. Heel lifts are not just for anatomical leg deficiency alone; use them if you have unleveling of the sacrum, or if the body of L5 is wedged, or if there is a deficient plateau of the sacrum. These are all anatomical deficiencies and need to be addressed by some means of supporting the deficient side.

Remember, a heel lift is an adjunct to your treatment regimen. It is only a mechanical device used to stabilize, and balance anatomical deficiencies. If it is applied and stabilizes your treatment procedures of restructuring and balancing the lumbar spine and pelvis, then it needs to remain in position for a lifetime. This type of anatomical deficiency needs lifetime support.

Lifts should be increased in 3-4 mm increments every two weeks until optimum stabilization has occurred.

Post films should be taken in 4 to 6 weeks to evaluate treatment results.

(Footnotes available upon request.)

About The Author – Dr. Art Gross is CFO of G & W Heel Lift, and a recognized authority on the biomechanical effects of leg length differences. He also teaches at Logan University on the subject of leg length inequality. He can be reached at admin@gwheellift.com.