Dynamic Chiropractic

DIAGNOSIS & DIAGNOSTIC EQUIP

Leg Length Discrepancy, Its Causes, and Its Importance

If one scans the literature it readily becomes obvious that leg length discrepancy/asymmetry is a common finding. This fact has been a very controversial topic within chiropractic, and diagnostic rationales have been built around this very common finding. The object of this column is to consider some of the causes of this discrepancy that the profession may have ignored or not been aware of.

Some causes of leg length discrepancy (other than anatomical):

(1). Dysfunction of the hip joint itself leading to compensatory alterations by the joint and muscles that impact on the joint.

(2). Muscle mass itself, i.e., the vastus lateralis muscle, pushes the iliotibial band laterally, causing femoral compensations to maintain a line of progression during the gait cycle. This is often misdiagnosed as I-T band syndrome and subsequently treated incorrectly.

(3). The internal rotators of the lower limb are being chronically short or in a state of contracture. According to Cunningham's Manual of Practical Anatomy these are muscles whose insertion is lateral to the long axis of the femur.

(4). The external rotators of the hip joint are evidenced in the hip rotation test, see The Adult Spine, volume 2,chapter 101.

(5). The iliosacral joint displays joint fixations on the superior or inferior transverse, or the sagittal axes. This may result from many causes including joint, muscle, osseous or compensatory considerations.

(6). Short hamstring muscles, i.e., the long head of the biceps femoris muscle.

(7). In the closed kinetic chain an inability of the fibula to drop inferior will result in sacrotuberous ligament loading failure.

(8). The sacroiliac joint dysfunctions along its right or left oblique axis.

(9). Failure or incorrect loading of the Back Force Transmission System (the longitudinal-muscle-tendon-fascia sling and the oblique dorsal muscle-fascia-tendon sling). See the proceedings of the first and second Interdisciplinary World Congress on Low Back Pain.

(10). Sacral dysfunction (nutation or counternutation) on the respiratory axis.

(11). etc.

When we consider the above mentioned, and other causes, it should be obvious that unless we look at

all of the causes of leg length discrepancy/asymmetry then we will most assuredly reach a diagnosis based on historical dogma or ritual rather than applying the rules of current differential diagnosis.

The Importance of Leg Length Discrepancy/Asymmetry

Apart from the obvious biomechanical changes that will occur there is a situation that can arise that has the potential for a huge impact on the quality of life of the aging population. According to Dorman, when discussing the longitudinal and oblique slings, "Defects in this system can lead to higher oxygen demands."

Boone states: "The central and peripheral hemodynamic changes that occur as a result of the artificially created leg length discrepancy indicate rather clearly that oxygen volume is not constant at a fixed workload," and "changed as a direct function of the unequal leg lengths." Simply put, leg length discrepancy causes increased oxygen consumption.

If we accept the above research, and there is no reason not to, then it is now even more critical to look at the causes of leg length discrepancy as the difference is manifested along many different routes. These manifestations are a reality on our patients, and we must be aware of the many causes of various conditions, i.e., hyperventilation syndrome, have you ever seen leg length inequality listed as a possible cause? The literature search I did revealed no such cause nor listed it as a consideration in the differential diagnosis. Hyperventilation syndrome as a result of leg length discrepancy? Sure, why not! If you follow the metabolic changes that occur in a patient whose breathing is impaired or altered, then very quickly you will be able to follow the nociceptive pathways into the dorsal horn and understand why subluxations occur, and/or are perpetuated by the leg length asymmetry.

Pulling on legs is one thing; understanding the causes and implications is another. Treating the cause and preventing future disease in our patients should be the primary goal. But if you are not aware of what is going on in the world of biomechanics and how it relates to your patients, then you may not be giving your patients the best you can. Leg length discrepancy can be caused by many different things, and it behooves you to be aware of each and every one of them. Failure to do so, and clutching on to old chiropractic dogma, is just another reason for a lack of respect and acceptance by other professions. As one of my patients states, "Garbage in, garbage out." That sums it up very well.

All of the above information will be taught in the new MPI course, "The Pelvis." Look for it soon!

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