



Dynamic Chiropractic – September 1, 2002, Vol. 20, Issue 18

Short-Leg Syndrome in Runners

By Daniel Batchelor, DC

Many runners develop imbalance and pain as a result of a leg-length discrepancy. If one leg is longer, it is similar to driving around with one car tire bigger than the others. The center of gravity changes as weight is transferred to one side of the body. One shoe heel will usually wear away more than the other. One foot, ankle, knee and hip will be under more stress, and there will eventually be compensatory changes that take place above the pelvis as the balance of the spine is altered. Scoliosis develops with eventual premature joint degeneration on one side of the spine.

There are two types of leg-length discrepancies. The first type is anatomical; one leg bone on one side of the body is longer than the corresponding one. This is rather uncommon, with present research stating that one in 452 people have it. The condition usually develops from polio early in life, a fractured bone early in life, or from a congenital malformation. The solution is rather simple: The chiropractor may add a heel lift to the short side after the exact difference in leg length is determined.

The other type of leg-length discrepancy is functional, and is present in three out of five people. The difference may be minimal or very great. If the difference is minimal, there are usually no symptoms from it. Over time, however, a minimal difference always becomes greater. In the runner, there is usually a more rapid change in leg length, as running involves tremendous vertical impact. Gravity eventually wins if nothing is done to combat the imbalance.

How does a functional leg-length difference develop? Over a number of years, one side of the spine may develop stronger than the other. Sleeping on one side; carrying items on one side; running clockwise on a track; using the phone on one side; facing traffic when you run; lifting suitcases; carrying kids; acquiring injuries when as a child, or even forceps delivery at birth, for example, can result in a functional imbalance.

Many runners with leg-length discrepancy tell us that when they run, they feel one foot impact the pavement more than the other. Some runners state that they feel a bit lopsided when running, and as noted earlier, one heel usually wears away faster than the other.

A person with a large difference in leg length often first notices something peculiar in photographs of himself or herself. One shoulder is a bit higher, and the head is always tilted a tiny bit to the side of the high shoulder. Sometimes the person that hems pants is the first one to notice the leg-length discrepancy. Sometimes runners notice the difference when they receive photographs in the mail from the "finish-line" photographers. At the end of a race, fatigue has set in and the true raw structural imbalance can be viewed in its entirety.

How can one detect a functional difference? The most efficient method is to combine special chiropractic analysis techniques with x-ray examination. The analysis can only be accurate if the patient is in the standing position.

How can one correct a functional difference? The process is gradual. It will involve stretching only one side of the patient's body with specific one-sided stretches, chiropractic manipulation, and specific strengthening exercises for only one side of the body.

In my clinic, during the patient's first visit, we examine and determine the amount of leg-length difference, then treat it and develop specific exercises to correct the condition. In four weeks, we re-examine to determine what changes have occurred. If the patient is under 25 years of age, the change is very rapid, and usually improves by 50 percent at the end of the first month. If the patient is between 25-40 years of age, there is usually a moderate rate of change. If the patient is over 40 years of age, the change is the slowest and a 20 percent improvement per month in leg-length discrepancy is common.

The best time to check for a leg-length difference is when a child is in elementary school. Examination by a sports injury chiropractor is recommended. We have had many children referred to us by school nurses after they have performed a basic scoliosis check on a child and found that a problem existed.

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