

## Clinical Rationales for Orthotics

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Why do some chiropractors insist on examining every patient's feet and legs? And why do these doctors recommend special shoe inserts (orthotics) so often? Is this just a sales gimmick, or some sort of health fad? This article looks at the reasons many doctors of chiropractic use orthotics, and also at the results they expect from these custom-fitted devices.

### Five Categories of Need

If we take a broad overview, we will see that there are five general categories, or rationales for using orthotics with chiropractic patients:

1. Structural alignment compensates for osseous malformation and misalignment.
2. Functional balance and symmetry counteracts excessive rotary forces transmitted to joints.
3. Shock absorption reduces chronic stress-loading to improve cartilage health.
4. Neurological coordination provides sensory integration of nerve patterns and gait habits.
5. Lower extremity symptoms, such as local pain, can be relieved to reduce secondary spinal problems.

You'll quickly notice that there is some overlap. Many patients fit into several of these breakdowns, yet no provider has ever suggested orthotics. A quick review of each of these topics will also help with the important job of communicating findings and explaining the need for orthotics to patients (and to the payors).

### Structural Alignment

When standing, walking and running, our feet and legs are the structural support for the spine. In some people, especially in those with back and neck symptoms, the structural system supporting the spine is uneven or canted. If there is a growth abnormality; a pelvic tilt or obliquity; a leg-length discrepancy; or other static osseous misalignment, chiropractic care must include a custom-crafted device to reduce the structural stresses on the spine. This condition is frequently seen in patients who have sought out chiropractic treatment for chronic neck and back symptoms that recur in spite of standard treatment.

Compensatory postural strategies will often develop that give some initial relief, which eventually result in subluxation complexes that are resistant to most treatments. Orthotics or heel lifts must be considered to achieve long-term relief of spinal symptoms in these patients.

### Functional Balance and Symmetry

Walking and running movements create twisting forces from the feet into the legs, pelvis and spine. When the forces are balanced and even, no individual body part is exposed to damage or excessive microtrauma. These rotary forces can become excessive, however, particularly at the hinge joints (such as the knee), and at multiplanar movement surfaces (such as the sacroiliac joints). Asymmetrical twisting stresses can develop into abnormal movement patterns, and can be the underlying source of spinal complaints.

While difficult to observe without high-speed videography, the results of functional asymmetry can be detected with a variety of simple clinical examination procedures. These include looking at shoe wear patterns, watching for foot flare (toe-out) during walking, or performing the navicular drop test. Reduction of excessive rotary forces by providing symmetrical joint function can frequently be accomplished by an orthotic with a pronation wedge, or extra support for one of the three arches of the foot.

### Shock Absorption

The amount of time our patients spend standing, walking or running on rigid, nonresilient surfaces is appalling. Yet This modern-day source of joint damage is so pervasive that we often don't consider it in our diagnoses of spinal conditions. Those degenerative changes we see in the spine - osteophytes; spurs; disc thinning; joint space narrowing; and bony remodeling - are often the result of years of abnormal stress. The chronic strain of gravity, when multiplied by the unyielding surfaces we have created to stand on, eventually causes spinal symptoms.

Reducing these damaging forces on spinal joints can be tremendously effective, because it not only provides current relief, but the decreased joint loading will greatly improve cartilage health in the long term. Orthotics crafted with shock-absorbing materials can significantly reduce spinal joint microtrauma and relieve chronic degenerative symptoms.<sup>1</sup>

### Neurological Coordination

For various reasons (poor childhood habits, incomplete injury recovery, repetitive work motions, or just aging), some patients develop spinal problems because of poor nerve coordination. This is best thought of as the retention of inefficient postural and movement patterns with resulting stresses extending throughout the body. Gait, balance and postural habits can often develop into chronically painful neck and back symptoms that respond only temporarily to standard chiropractic treatments. The source of these imbalances is often deep within the processing fields of the central and peripheral nervous systems.

By providing controlled orthotic support to the sensitive proprioceptive nerve endings in the feet, many patients can improve their sensory integration of postural balance, nerve reflex patterns and gait habits.<sup>2,3</sup>

### Lower Extremity Symptoms

Finally There are many lower extremity conditions that can result in spinal problems and symptoms if left uncorrected. Morton's neuroma, an unstable ankle joint, tracking problems of the patella, and hip joint asymmetry can all result in chronic subluxations with recurring back and neck pain. In cases such as these, good chiropractic care must address the lower extremity problem in order to provide effective treatment for the spinal complaint. It is not unusual to find patients who must get treatment for their foot, ankle, or leg problems before their chiropractic care results in long-lasting improvement of their spinal symptoms. In other words, it is frequently necessary to supply orthotics to relieve local pain to reduce and prevent secondary problems and symptoms in the spine.

### Conclusion

It has been my experience that most patients who demonstrate a need for orthotics have problems in more than one of the five categories described. By understanding and explaining the clinical rationales to patients, family, and third-party payors, a greater acceptance becomes likely. The

doctor of chiropractic who evaluates all patients with these categories in mind will be providing quality, efficient care in a cost-effective manner. This is why chiropractors, who are spine specialists, must also look at feet and legs, and why orthotics are such an important aspect of chiropractic care.

### *References*

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