

Orthotic Therapy: The Postural Imperative

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Prescribing therapeutic orthotic support as an adjunct to chiropractic care aids in the prompt resolution of numerous clinical conditions and improves a patient's ability to maintain improved body mechanics and function. Orthotics enhance the stability and balance of the pedal foundation, enhancing the integrity of overall musculoskeletal alignment and interrelationships.¹

Because the feet are the foundation of the body, their influence must be considered even in cases involving other body structures. If a patient's condition is affected by gravitational forces, structural imbalance, or joint disturbances, orthotics are helpful in speeding recovery and preventing reoccurrence of problem conditions. In cases of specific trauma that produce an area of weakness, healing can be accelerated when strong support is provided by a balanced foundation.²

Treating the Whole Patient

Recognition of integrated relationships in the musculoskeletal system is a fundamental concept of chiropractic, and central to its effectiveness. The ability to see the body as an interrelated unit, instead of treating isolated symptoms, generates results that build patient satisfaction and professional success.

In the same way, understanding the relationship between a balanced pedal foundation and total postural health improves the effectiveness of individual case management. Forces of gravity work through the interrelated linkages of the feet, knees, and legs into the spine and pelvis. These forces also impact on a patient's ability to respond to and maintain adjustments.³ The body functions as a closed kinetic chain, where movement at one joint influences movement at other joints.⁴

Foot dysfunction occurs in an estimated 80 percent of people over the age of 40. Often, patients are unaware of their problem because symptoms refer to structures away from the pedal function.

Many pelvic and spinal distortions can be traced to altered foot biomechanics.⁵ It is the doctor's responsibility to check for evidence of underlying deficiencies that influence a patient's particular complaint, and prescribe appropriate correction.

Tracing the Kinetic Chain

Excessive pronation of the subtalar joint is the most common foot disorder that contributes to chronic postural problems.⁶ A natural inroll of the foot must occur during gait so that body weight shifts forward, knees can flex, and natural shock absorbers protect upper body structures from heel strike forces. When the degree and duration of pronation exceed established norms, consequences extend throughout the closed kinetic chain. For example:

At the knee: Flattening of the longitudinal arch stretches the retinaculum on the medial side. The patella is pulled laterally in the femoral groove during flexion, setting the stage for chondromalacia patellae.⁷

In the pelvis: Lack of pedal support prolongs inward rotation of the lower extremity, causing inward hip rotation related to myofascial back pain.⁷

At the spine: Excessive pronation effectively creates a functional short leg, leading to pelvic unleveling. Shear strain on the articular facet joints, compensatory scoliosis, and intra-articular capsule changes are possible consequences.⁷

Orthotic Correction

Flexible orthotics serve to control motion within the foot, including the angle and timing of pronation.⁸ It is important to facilitate but not restrict movement, to avoid a compensatory hypermobility elsewhere in the kinetic chain. Resilient flexible orthotics allow movement to occur, but check the degree of inroll as if a wedge were placed at the point of weakness.

Several studies verify the effectiveness of orthotic support in stabilizing the pedal foundation for better postural health. In one, pronation measurements were taken on both an injured and a normal foot. When an orthotic was worn on the injured foot, the degree of pronation was almost equal.²

Another study⁸ involving the use of flexible orthotics focused on three key postural measurements:

1. Femoral head height. Healthy posture shows little or no difference in head height. Variance reflects functional or structural problems in the feet, knees, pelvis, or spine.
2. Sacrovertebral angle. The accepted optimum angle is 110 degrees. Pelvic tilt or lumbar lordosis will cause a change in angle measurement.
3. Lumbosacral disc angle. The standard measurement is between five and nine degrees. Outside these limits, weightbearing stress can effect the facet articulation and disc.

Subjects in the study wore spinal pelvic stabilizers for four months, but received no chiropractic adjustments and made no other lifestyle changes. At the end of the period, measured improvements occurred in all three areas.

Members of a runners' club demonstrated that orthotics provide a high level of symptom relief.² Almost 350 people who had been using orthotics for an average of two years completed identical questionnaires about specific musculoskeletal symptoms. Complete resolution or great improvement in their symptoms was reported by 75 percent of respondents.

Among their complaints were pain in the knees, feet, ankles, shins, and hips. The top three conditions in those diagnosed by health care professionals were excessive pronation, plantar fasciitis, and Achilles tendinitis.

A study focusing on patients with leg length inequality involved 1,157 subjects with discrepancies of less than 10 millimeters. Over a 15-year period, they demonstrated a 75 percent reduction in low back pain, sciatic pain, and hip pain when shoe inserts were worn. Pain would often occur the same day that inserts were not used, and go away when used resumed.⁹

Identifying Pedal Imbalance Every chiropractic patient is a potential candidate for orthotic therapy. With a trained eye, many doctors can determine the likelihood of pedal imbalance as the patient walks into the examining room. Clues include:

- Foot flare: toeing out while walking indicates excessive inroll in one or both feet.
- Medial patellar rotation: impact of pronation on the knee as described above manifests in abnormal rotation of the patella.
- Bowed Achilles tendon: inroll of the foot stresses soft tissues, creating a distinctive curve of the Achilles tendon.

These factors serve as general indicators of foot imbalance. During the routine patient exam, be alert to more specific symptoms, including:

1. The presence of shin splints, patellofemoral disorders, Achilles tendinitis, plantar fasciitis, or stress fractures.²
2. Local signs such as corns, calluses, bunions, neuralgia, or altered circulation.⁸
3. Leg length inequality, especially in the presence of low back pain, unilateral hip arthrosis, or lower extremity stress.¹
4. General complaints of leg cramps, knee or hip pain, spinal distortion, cervical tension, mid-thoracic or low back pain, sciatica, or fatigue.⁸
5. Arch collapse:

Summary

The integrity of the body's pedal foundation has a direct impact on total musculoskeletal health. The closed kinetic relationship between the feet and upper body structures can affect the effectiveness and longevity of chiropractic care and correction.

Flexible orthotic support normalizes foot structure and motion to provide a more stable base for the musculoskeletal complex. Even though the feet may not hurt, symptoms referred elsewhere in the body manifest as chronic pain or lack of permanence in chiropractic adjustments.

Clinical studies and field research verify the value of orthotics in relieving pain and improving structural integrity. Flexible orthotics control pedal motion without restricting function and creating compensatory hypermobility in other structures.

References

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APRIL 1994