Dynamic Chiropractic

SPORTS / EXERCISE / FITNESS

Spinal Pelvic Stabilization -- from the Ground up

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The feet are the foundation of the body. They are designed for weightbearing, flexible locomotion, and shock absorption. When the pedal foundation is weakened by structural deficits such as hyperpronation or musculoskeletal misalignments,[1] the effectiveness of professional care can be affected.

Chiropractors have long known what some other health professionals are just discovering: the cause/effect relationship between pedal stability and spine/joint conditions. Musculoskeletal imbalance and breakdown in response to a weak pedal foundation can occur anywhere along the kinetic chain. Foot dysfunction can lead to chronic knee, pelvic and spinal distortions, and exacerbate existing clinical conditions, even those with no apparent relationship to the feet.[2,3,4] In fact, the feet are often asymptomatic.

Advantages of Spinal Pelvic Stabilization

Prescribing orthotics to correct biomechanical conditions related to pedal instability is a widely-accepted practice in modern chiropractic.[5] Flexible stabilizers are the only orthotics designed specifically for chiropractic problems. They help maintain normal foot position and control pedal function. This is accomplished by supporting the plantar vault formed by the foot's three natural arches.[6] A gradual weakening in this area often occurs naturally after years of standing, walking, and wearing shoes; the incidence of foot dysfunction in 80% of people over age 20 is indicative of this weakening.[7]

Dynamic stabilization therapy's goal is to control, not restrict motion, within the pedal structure, particularly of the subtalar joint.[8] Chiropractic experience verifies that joint restriction can inhibit postural functional integrity. Stabilizers can enhance structure and performance of each of the foot's three functions

1. Support. Over time, the effects of gravity upon a normal weightbearing stance will weaken tissues and stress joints in the pedal foundation. Stabilizers help reduce bodyweight strain and tissue elongation by supporting proper joint position and reducing excessive motion.

2. Locomotion. When the foot hits the ground during normal gait, a series of biomechanical responses occurs along the body's kinetic chain. Excessive pronation due to structural or functional abnormalities is responsible for more chronic postural problems than any other foot disorder.[9] Flexible stabilizers can control both the degree and duration of pronation.[8]

3. Shock absorption. Heel strike generates forces reaching five to seven times body weight.[10] Normal pronation relaxes the foot to absorb some heel-strike shock directly,[2] and enables knee flexion that helps protect spinal/pelvic structures from pathological shock.[1] When pronation becomes excessive, this protective mechanism breaks down, resulting in shock transmission into the spine. By controlling pronation, stabilizers enhance the body's natural shock absorbers.[9]

The most effective stabilization therapy is based on two principal considerations: the extent of imbalance in the weightbearing foot, and the degree of physical stress created by occupation/lifestyle, physiology, and clinical condition. Evaluating both factors allows the chiropractor to prescribe the stabilizing support level that will most effectively address individual biomechanical needs.

Advantages of Weightbearing Casting

A weightbearing cast provides the most accurate image of foot dysfunction for prescribing stabilizing correction.[11] All foot functions occur during stance; when not bearing weight, even a flattened arch can exhibit a deceptive integrity.

Likewise, the body's integrated biomechanics can be observed only in a standing position. When the body is evaluated in a non-weightbearing position, vital information regarding function is lost, and there is no apparent relationship between components.[12] A flexible stabilizer made from a weightbearing casting, allows the foot to be supported, not "crutched." The resulting foot balance allows for proper biomechanical function.[13]

Proponents of the negative casting (non-weightbearing) method subscribe to a need to determine subtalar neutral; however, studies assessing the reliability of determining subtalar neutral have been sparse, and that measurements of calcaneal inversion and eversion are "crude and inexact."[14] In a survey of 110 podiatrists using independent laboratories to fabricate orthotics from their negative castings, 12% of these professionals had to either supply additional information for, or recast more than 25% of, their patients before the orthotics could be made.[15] A comparable study of chiropractors using the weightbearing system revealed less than one percent of position-of function castings to be deficient in data to perform the job.

Stabilizer Selection and Usage

Determining the extent of a patient's imbalance (foot, pelvis, and spine) and physical stress level guides the stabilizer selection process. The best therapeutic results can be achieved from a custom-made, flexible supportive device that is produced to match each individual's unique characteristics.

It should be emphasized that stabilization therapy is a tool for use in conjunction with professional chiropractic care. Information gleaned from a comprehensive examination and individual case management factors may reveal the need for enhanced support.

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