

## Enhancing Muscle Function With Postural Support

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The foundation of the spine is the sacrum, and pelvic alignment depends on the symmetry of the lower extremity. Although these associations may appear complex, a simple screening procedure provides a powerful explanation any patient can experience. Show your patients that the foundation for the entire body lies in their feet.

### Structural Support

The three foundational arches of each foot combine to form the plantar vault. [Postural support](#) and body-position feedback rely on the numerous articulations and intrinsic muscles, which are packed with joint receptors and proprioceptive fibers. However, communication and support are compromised when ordinary forces cause permanent ligament laxity and muscle stretching.

The body's structure reacts continuously to the stresses of standing, sitting, walking and sleeping. Although patients may know it's the nervous system that coordinates this process, they may be surprised to learn that the postural system can be adjusted almost at will. It is a matter of changing the inputs.

The nervous system receives input from the varied receptors found in the muscles, joints, tendons, eyes and ears. It is within the cerebellum that we determine and establish our position in space; but more importantly, the cerebellum also helps coordinate muscle activity by stimulating or inhibiting muscle function.

When the Golgi tendon organs and Type III mechanoreceptors found in the feet are stretched excessively, neurological feedback inhibits the tonus and contractility of the muscles innervated by the same cord levels. Most of the foot muscles are innervated by the tibial nerve (or branches), composed of fibers from cord levels L3 to L5 and S1 to S3. Therefore, the muscles of the entire lower extremity and pelvis are neurologically inhibited by foot dysfunction, even in the absence of pain.<sup>1</sup>

### Muscle Function

Coordinated stimulation and inhibition of muscles, resulting from faulty input, often causes the repeated patterns of subluxation you treat daily. For example, it is very common to find a pattern of pronated foot, tight hamstrings, pelvic unleveling, lumbar rotatory misalignment, hypertonic trapezius, and upper cervical subluxation in a patient.

Testing the relative strength of paired muscles found on opposite sides of the body will isolate asymmetries. If muscular strength is imbalanced, the postural attitude of the body is surely affected.

### Resistance Testing: What to Do

The following tests demonstrate how your treatment will balance your patient's foundation, benefit their posture and improve their health:

*Test #1:* Have the patient sit after standing / walking barefoot. Instruct the patient to flex at the hip (isolating the psoas muscle) and raise one foot off the floor several inches. Explain that you will be resisting their effort to maintain this position as you press downward just proximal to the knee. Once the patient initiates force against the resistance, increase steadily the downward pressure until the thigh begins to drop; then decrease the force. Repeat this procedure on the opposite side and look for relative weakness on one side.

*Test #2:* Using orthotic testing samples, ask the patient to stand on them to restore symmetry and postural balance. Ask the patient to sit while maintaining this position and repeat the muscle test procedure. This time, the patient should remain symmetrical and strong when tested, the stressors associated with [weight-bearing](#) having been reduced or eliminated.

This combination of muscle tests should make it clear to patients that posture and strength are indeed related. Not only will they be stronger following an adjustment, they will also maintain these adjustments better when their feet are maintained in healthy positions.

### Care Recommendations

After performing these quick tests, discuss the results with your patient like this: "You can see that muscles and bones are closely related and that you are stronger in certain positions that minimize stress and coordinate your posture. I recommend we cast you for stabilizing orthotics to help you hold this healthy posture and your adjustments all the time."

Use the testing procedures as often as it takes to make this relationship clear. The same testing procedure effectively shows increased strength following a chiropractic adjustment. Orthotic support not only enhances neuromuscular re-education; it will also:

- *Create a symmetrical foundation* by guiding normal ranges of pronation and supination. An asymmetrical foundation is a contributing factor in pelvic unleveling and flexible scoliosis.<sup>2-3</sup>
- *Provide shock protection for the entire foot.* The natural shock-absorbing capacity of the foot / ankle complex is reduced with either excessive pronation or supination.<sup>4-5</sup> Although controlling hyperpronation decreases the risk of metatarsalgia and stress fractures, with the addition of viscoelastic materials in the heel and forefoot, the burden of these forces is all but removed from the body.
- *Inhibit biomechanical distortions throughout the [kinetic chain](#).* Excessive foot and ankle motions are coupled with pathologic compensations in all the joint complexes above, including the SI, up to the occiput.<sup>6-7</sup>

Human nature is such that we tend to resist pressure, but are happy to let people we trust guide us. In all patient interactions, your communications and invitations should not invoke resistance. As you demonstrate your ability to affect your patients' health, your patients will gladly accept and follow your advice.

### References

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