

Screen Your Patients to Determine Orthotic Need

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Screening every patient for the presence of lower extremity imbalances and abnormalities is a useful and important part of comprehensive chiropractic care. Many chronic or recurring pelvic, sacroiliac, spinal and lower extremity complaints are associated with gait imbalances and awkward walking movements. Early signs of stress fractures have been found in the upper leg and hip after only two weeks of altered foot biomechanics.¹ The best doctor detects potentially destructive health problems before they become obvious and symptomatic. Chiropractic treatment is much more effective and efficient when underlying locomotor problems are considered and addressed.

Five Quick, Simple Steps

A busy doctor of chiropractic doesn't have the time, equipment or office space required to perform a comprehensive gait analysis on every patient. The solution is to perform a simple, brief screening evaluation that still provides considerable information for treatment planning. This lower extremity screen will raise red flags to identify patients who need further analysis or more in-depth evaluation. In my experience, these five steps are easy to add to your examination procedures. When several red flags are present, there is now a good objective test that can determine arch collapse.

Step one: Watch every patient walk. By observing a few normal paces, several abnormal gait findings can be distinguished. By far the most common fault (and one that is often implicated in spinal problems) is foot flare, or excessive toeing-out during walking. This can be identified by looking at the alignment of the foot with the lower leg as your patient walks. An angle greater than 10 to 15 degrees is a red flag for excessive rotational torque stresses on the knees, sacroiliac joints and spine. Also, be on the lookout for less common problems like toeing-in, limping, lurching and foot drop (which may indicate a major neurological problem).

Step two: Look at the shoes. Check for any excessive or abnormal wear patterns present, especially on the heels. Any asymmetrical, excessive or lateral (rather than posterior) wearing down of the heel constitutes a red flag. This is good evidence of poor support of the pelvis and spine by the lower extremity, with abnormal biomechanical forces.

Step three: Knee-to-foot alignment. If your patient's knee joints are not in line with their feet, it is very likely that pelvic adjustments will not hold as well as you might expect. The quick way to check this is to look at the lower legs from the front. Mentally draw a straight line down from the midpoint of each kneecap to the foot. If this imaginary plumb line does not strike the foot over the first two metatarsals, a red flag should be raised in your mind.

Step four: Is the Achilles tendon straight? When you see a patient's heel cord bowing inward (medially), you have a red flag that indicates probable instability of the *calcaneus*. When the heel bone is not aligned with the Achilles tendon, the patient frequently is an "overpronator," and this biomechanical fault is often an important part of the patient's back symptoms.

Step five: Check the medial arches. A quick palpation of the medial arches of the patient's feet while the patient is standing will speak volumes about biomechanical efficiency. If you cannot get your finger under the medial longitudinal arch, you have a red flag. If you can push a finger under the arch, take a moment to push upwards into the plantar fascia. With just a brief palpation, you will be able to tell if the connective tissue that supports the arch is intact, or under excessive strain. If pushing up into the bottom of the foot causes pain, it is very likely that your patient has plantar fasciitis - hopefully still at a stage where conservative biomechanical treatment will be rapidly helpful.

Navicular Drop Test

When you have detected several red flags, or the presence of foot and ankle symptoms, the next step is to perform the "navicular drop test" that measures foot support. This procedure takes little time, and requires no additional space or expensive testing equipment.

Over the past few years, several articles have reviewed a method of objectively documenting the presence (or absence) of collapse of the medial longitudinal arch.² The measurement uses a test method originally proposed by Brody.³ It requires some practice,⁴ though it is easy, and has even been used in a recent research article concerning athletes with ACL ruptures.⁵

The only pieces of equipment needed are a marking pen and a piece of three-inch by five-inch card stock. With the patient sitting comfortably (feet on the floor, but nonweightbearing), palpate the medial aspect of each foot and find the navicular prominence (the most prominent bony landmark found inferior and somewhat anterior to the medial malleolus). Using the pen, make a mark on the patient's skin at the point of the navicular prominence. Stand the card on the floor next to the medial arch of the foot and mark the card at the level of the navicular prominence.

Next, ask the patient to stand in a relaxed position. Once the arch is weight-bearing, the navicular prominence will be somewhat lower. Make a second mark on the same side of the card at the new level of the navicular prominence. Repeat this procedure with the other foot, then measure the difference between the two marks for each foot. If there is a drop of four millimeters or more in the arch between sitting and standing, or if there is an obvious asymmetry between left and right, this is objective evidence of a functional foot problem - hyperpronation or collapse of the medial arch. This condition is best treated with custom-made orthotics designed to be worn during all weightbearing activities.

I have found that patients are impressed by this professional approach and the measurable and well-documented findings when I use this procedure.

Results

With the screening and measurement procedures described above, I can perform a functional and useful gait evaluation quickly and efficiently. No fancy equipment is necessary, and the small amount of time required is rewarded when I identify a potentially difficult case that will respond rapidly to chiropractic care. I simply communicate my findings and explain the need to support the spine and lower extremities with orthotics.

References

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