



OrthopedicNotes

Can Orthotics Help Kids?

Childhood foot problems can have both immediate and long-term effects. During growth, the normal development of the pelvis and the spine will suffer if there is a foot imbalance. A budding athlete's skill level — even running at recess — can be significantly affected.¹ Later on, foot problems from childhood can interfere with adolescent (or adult) spinal function, which can result in poor biomechanics and accelerated degenerative changes in the knees, hips, and spine. With a relatively quick screening of their younger patients, Chiropractors can identify those who need early intervention, and then provide proper custom-made orthotic support.



Early Development

During early development, and especially as we begin to walk, the lower extremity changes significantly. The legs undergo rotation, in order to allow the feet to align with the knees and hips for smooth gait. The arches slowly become more obvious and increase in height as our gait improves. Most problems arise when the feet and legs do not align properly (in-toeing or out-toeing), or when the main longitudinal arch does not develop fully.



Screening Exam for Orthotics

A very quick method for checking kids for the need for orthotics follows:

1. Observe the child's gait.

With young patients, the most common fault is in-toeing, followed closely by excessive toeing out (foot flare). This can be identified by looking at the alignment of the foot with the lower leg as your patient walks. An angle that is either less than 5° or greater than 15° is a red flag for excessive rotational torque stresses into the knees, sacroiliac joints, and spine.

2. Knee to foot alignment.

Look at the lower legs of the child from the front. Mentally drop a straight line down from the mid-point of each kneecap to the foot. This imaginary plumb line should strike the foot over the first two metatarsals. If the knees point out or in when the feet are straight ahead, or if there is a valgus angulation (knock-knees), another red flag is raised.



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3. 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 does not align with the Achilles tendon, the child will develop into an overpronator, and this biomechanical fault will interfere with knee, hip, and spinal function over the decades.

4. Check the medial arches.

If you cannot get your finger under the medial longitudinal arch, the child is not developing normal arches. While palpating the arch, take a moment to push upwards into the plantar fascia. If this is painful to the child, it is possibly the sign of early plantar fasciitis, which is likely to still be at a stage where conservative biomechanical treatment will be rapidly helpful.



5. Check for recurring subluxations.

Palpate and adjust any parts of the foot that are not functioning normally. Ask the child to walk around the room a few times, and then re-check. If the extremity subluxations that were just adjusted have returned, it demonstrates an underlying biomechanical problem, which will need external support.

6. Look at the shoes.

Take a brief moment to inspect the wear pattern on the child's shoes.

Parents may need to be instructed to bring in a worn pair, for better analysis. Look to see if there are any excessive or abnormal wear patterns present. A red flag is any asymmetrical, excessive, or lateral wearing down of a heel, or a bulging or tearing of the shoe's upper material.

Solution? — Orthotics for Kids

Children do not usually need custom orthotics until about the age of five years. If at that point a child is still not developing a normal arch, or if in-toeing persists, orthotics may be needed. This is particularly true when the child is involved in athletics and sports activities. In these cases, custom-made orthotic support for the arches can significantly improve gait and running performance.

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