

## Treatment Options for Childhood Flatfoot

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Flatfoot (also known as *pes planus*) is a condition defined as the lack of a medial longitudinal arch in the foot. Although very common in children, the exact incidence of this finding in that population is unknown.<sup>1</sup> Given that nearly all children start out with little or no arch, is this condition a real concern? Is intervention appropriate, and if so, when? What role, if any, should arch supports, special shoes or in-shoe orthotics play? Parents want to know, and we doctors need to understand the natural history of flat feet.

### Flexible Versus Rigid Flatfoot

Almost every child's foot initially has a large medial fat pad that slowly decreases during maturity. This eventually results in a more prominent medial longitudinal arch.<sup>2</sup> A 1988 study confirmed that 28 percent to 35 percent of schoolchildren have a flatfoot deformity, 80 percent of which were classified as "mild."<sup>3</sup> Without treatment, more than 90 percent of these children would be expected to have normal arches by the age of 10.<sup>2,4</sup> The vast majority of children with a flatfoot should, therefore, eventually develop normal longitudinal arches.

However, it is very important to differentiate a normal, flexible flatfoot from a congenital, rigid flatfoot. A rigid flatfoot is usually due to an osseous deformity, such as a tarsal coalition (abnormal fibrous or bony fusion of one or more tarsal bones). One test to determine the existence of a rigid flatfoot easily can be performed in the chiropractor's office. If an arch is present when the child is sitting with the foot dangling, or when standing up on the toes, then the flatfoot is "supple and is correctable with an arch support."<sup>5</sup> If the foot remains flat and rigid, any attempt to support or lift up the arch may be painful and unsuccessful.<sup>6</sup> A referral to a specialist may be required.<sup>7</sup>

### When Intervention Is Needed

Research by Lin, et al., found that preschool children with flexible flat feet "compared with children without, performed physical tasks poorly and walked slowly, as determined by gait parameters."<sup>8</sup> So, when a parent brings in a child with flat feet who is between the ages of 6 and 10, and the in-office tests mentioned above confirm a flexible flatfoot, immediate intervention is necessary to encourage normal development of the longitudinal arch, and to prevent pelvic and spinal postural deformities.<sup>9</sup> This is especially true when one foot is flatter than the other. The resulting asymmetrical forces imposed during locomotor activities eventually can result in significant cumulative trauma to the foot/ankle complex, knees, hips, and low back.<sup>10</sup> If the child is 10 years of age or older, the flexible flatfoot can be considered permanent, and he or she will require long-term use of orthotics to prevent future problems in the foot, lower extremity and spine. This is especially true for overweight or athletically active youngsters.

### Recommended Treatment for a Flexible Flatfoot

1. Strengthen the child's lower leg muscles with home exercises, especially tibialis posterior, and internal/external rotation exercises. Also, have the child perform the towel-gathering exercise ("scrunching" a towel with the toes with the towel on the floor) for 15 minutes daily.<sup>11</sup>
2. Insist the child wear supportive shoes with a stable heel (not worn down on either side) and a strong shoe counter. The counter is the shoe material that fits around the heel of the foot.
3. If excessive pronation and flatfoot persist as the child matures, correction with flexible, custom-made orthotics is indicated.

### Check the Shoes

Proper footwear is important for the developing foot. Whenever safety and comfort allow, going barefoot stimulates proprioceptors and encourages muscular coordination and strength. Children's shoes should have flexible soles to allow for proper foot-joint movement (thick, rubber soles may hamper and confine). Proper shoe sizing and fit are critical, since the developing bones are soft and malleable. Tight, constricting shoes will interfere with normal growth and may result in deformity. Frequent evaluation of size and fit (palpate the child's foot for pressure points while standing with shoes on) is an important concept for parents to understand and accept.

### Orthotic Support

As described above, the majority of pediatric foot problems will resolve with exercise and proper footwear. Orthotics are seldom needed in the early years of growth. If a supple flatfoot and/or excessive pronation seems to persist beyond ages 6 or 7, or is responding poorly to home-care interventions, custom-made, flexible orthotics are appropriate. The additional corrective support they provide will encourage normal development while preventing further deformity and reducing abnormal kinetic-chain stresses on the pelvis and spine during the formative years.

### Early Care for a Lifetime of Health

Parents need reassurance and appropriate recommendations when they bring in a child with a "flatfoot." Most common childhood foot conditions will resolve during normal growth and development, needing only home-care recommendations. As always, the developing spine should be evaluated and appropriate chiropractic care recommended. Specific exercises may hasten the maturation and coordination of the support muscles. In some cases, flexible, custom-made orthotics may be needed to provide additional corrective stimulus and support.

### References

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