

Treatment of the Child's Foot

John K. Hyland, DC, MPH, DACBR, DABCO, CSCS

The chiropractor is frequently questioned by parents who have noticed something "different" about a child's foot. Does the child need chiropractic treatment, referral to a podiatrist or an orthopedic surgeon? Should sports be limited or encouraged? What shoes are best?

The following is a summary of common pediatric foot conditions with recommendations. As will be seen, the vast majority can be managed by chiropractors, since specialized bracing and surgery are seldom necessary.

In-toeing is the most common pediatric foot problem seen in doctors' offices.¹ The parent reports an abnormal appearance of the foot, an awkward gait or a "clumsiness" with the tendency to trip or fall. A structural and biomechanical examination of the lower extremities, including watching the child walk, will allow for differential diagnosis and appropriate treatment recommendations. In-toeing is caused by three conditions, whose timing and treatment considerations vary.

Metatarsus Adductus

Also known as a "hooked foot," metatarsus adductus is a contracture of the medial soft tissues of the foot. This condition has been found to be present in six percent of school children.² On examination, the in-toeing can be passively stretched to normal, since there is no bony abnormality associated. Over 90 percent of infants with this condition will resolve by the age of 18 months.³ When more than mild adduction persists beyond one year of age, a consultation with a pediatric podiatrist or orthopedic surgeon for consideration of casting is appropriate.

Recommendations

1. Instruct parents to massage and stretch the medial soft tissues of the foot for several minutes following each diaper change.
2. Specialist evaluation if significant adduction persists beyond one year of age.
3. Flexible orthotics are needed only if mild adduction continues beyond age seven.

Tibial Torsion

This is a very common condition in which the tibia has not completed its external rotation to normal adult position (therefore, a lack of torsion). On standing examination, the knees face forward while the ankles and feet face inward. The natural history is a gradual normalization with growth and use of the

lower leg muscles. Most cases resolve by two years of age, but rotation values continue to increase an average of 1.5 degrees a year, up to age six.⁴ By age seven the vast majority of children have achieved normal adult position.⁵ There is a familial tendency among those who fail to reach normal values. When tibial torsion persists, compensatory pronation commonly develops.⁶

Recommendations

1. Instruct parents to stretch the medial soft tissues of the lower leg.
2. Strengthen the peroneal muscles when the child can cooperate sufficiently.
3. Insist on shoes with good support to decrease pronation stresses. In cases of hyperpronation, orthotics should be considered.
4. Activities and sports which emphasize lower leg training may be beneficial.

Femoral Torsion (Anteversion)

This is an inward rotation of the entire lower leg. Also a common condition, it is recognized by the medial facing of the knee, as well as the ankle and foot.⁵ With walking, more than 90 percent will resolve by eight years of age. Any persistency is thought to be due to ligamentous laxity of the hip joint capsule.³ Examination will find excessive passive internal hip rotation; and lumbar hyperlordosis, genu recurvatum, and hyperpronation are frequently associated.

Recommendations

1. Strengthen external rotator muscles of the hip.
2. Parents can passively stretch the hips in external rotation, and the child should be encouraged to sit cross-legged, "Indian style."
3. Shoes with good support are very important.
4. Sports activities such as ballet, skating, and bike riding should be encouraged.

Flatfoot is normally found during early human growth and development. Initially, the child's foot has a large medial fat pad which slowly decreases, resulting in a more prominent medial longitudinal arch.⁷ A recent study² has confirmed that 28 to 35 percent of school children have a flatfoot deformity, 80 percent of which are classified as "mild." Without treatment, over 90 percent of these children will have normal arches by age 10.^{7,8} However, it is important to differentiate a congenital, rigid flatfoot,

since specialist referral is necessary. If the arch is present when the child is sitting with the foot dangling or standing on the toes (toe-raise test), then the flatfoot is "supple and is correctable with an arch support."⁹

Recommendations

1. Strengthen lower leg muscles; towel-gathering exercise 15 minutes daily.
2. Insist on supportive shoes with a strong, stable heel counter.

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 is 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 (use the Soda Straw Test) and fit (palpate child's foot for pressure points while standing with shoes on) is an important concept for parents.

Orthotics

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 or excessive pronation associated with in-toeing is seen to persist beyond ages seven or eight 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 formative years.

Conclusion

Parents need reassurance and appropriate recommendations when they bring in a child with a "foot problem." 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 is recommended. Specific exercises may hasten the maturation and coordination of the support muscles. In some cases, orthotics may be needed to provide additional corrective stimulus.

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John K. Hyland, DC, DABCO, DACBR
Foot Levelers, Inc.
Roanoke, Virginia

SEPTEMBER 1993