Adult-acquired flatfoot (AAF) is defined as a progressive deterioration of the static and dynamic structures that support the foot. Although frequently linked with posterior tibial tendon dysfunction (PTTD), AAF is a far broader syndrome that describes a gradual but painful breakdown of the weight bearing foot.

In a previous article, “Understanding Adult-Acquired Flatfoot” (The O&P EDGE, November 2014), we looked at some of the causes of this condition, which usually begins with bilateral pes planus, progresses to PTTD, and can ultimately end up as a fixed deformity with midfoot collapse and forefoot abduction. Along this trajectory, the foot moves through clearly defined stages as the key supporting ligaments are attenuated, midfoot joints become subluxed, and the foot becomes more rigid.

Several tests can be used to evaluate and stage AAF. The patient’s initial complaint will often be unilateral pain along the course of the posterior tibial (PT) tendon. It is helpful to recognize that, although the symptom may appear to be local, the effect on foot function is occurring in all three planes. For example, a lower arch due to PT muscle weakness can lead to a restriction of the critical first metatarsal phalangeal joint (MPJ) (sagittal plane motion). This, in turn, blocks the windlass mechanism, resulting in an unstable midfoot after heel lift, which is often seen as calcaneal eversion (frontal plane motion). Although not an exhaustive list, the spectrum of tests in this article will assess the loss of foot strength and function in several dimensions. Radiographic analysis and nerve conduction tests will confirm the extent of the condition.

Given that AAF progresses in a somewhat defined pattern, there are appropriate treatment protocols to address each stage of the condition. The goal is to provide adequate support to prevent further pathology—without restricting beneficial motion. Thus, patients who exhibit the early stages of AAF can often be treated successfully with functional foot orthotics and physical therapy, whereas patients in the later stages require the more restrictive control of AFOs and perhaps surgery.
Stepping Out

Often there will be an abduction of the forefoot, also referred to as the “too many toes” sign, indicating a transverse plane component to the deformity.

Test the range of motion (ROM) of the first MPJ in a non-weight bearing position. In a normal foot, the hallux should dorsiflex at least 50 degrees. Smooth motion of the first MPJ is essential to foot function in the sagittal plane.

Perform the Hubscher maneuver on the weight bearing foot to test the functional ROM. Less than 12 degrees of dorsiflexion indicates a functional hallux limitus. If motion is restricted, then the windlass mechanism is blocked. The windlass mechanism is essential for pulling the plantar fascia taut, stabilizing the midtarsal joint during the propulsive phase of gait, and rotating the lower leg externally.

Use the Silfverskiold test to check for available ROM at the ankle. Less than 10 degrees of ankle dorsiflexion represents a restriction and some level of equinus.

If there is increased dorsiflexion of the foot available with the knee flexed, it indicates a tight gastrocnemius. The presence of equinus places undue stress on the support structures of the midfoot, leading to their gradual deterioration.

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