Most foot and ankle disorders can be diagnosed after a proper history and clinical examination and can be effectively managed in a primary care setting. It is important to assess the entirety of patient disorders that present as they can be multifactorial in cause. A broad differential should include disorders of bones, joints, muscles, neurovasculature, and surrounding soft tissue structures. Physical examination should be thorough and focused on inspection, palpation, range of motion, and appropriate special tests when applicable. This article highlights some of the salient features of the foot and ankle examination and diagnostic considerations.

Evaluation of gait and its associated deviations from normal requires an in-depth evaluation of the patient and an appreciation for the complexity of the task. Understanding gait starts with an appreciation of the basic determinants of gait. Foot drop is a common gait deviation. Functionally, a foot drop results in a long limb. This will result in alterations of the gait cycle during swing phase. The common compensations for a foot drop include steppage gait, circumduction, and a persistently abducted limb. Noninterventional options for management of common gait deviations secondary to ankle/foot dysfunction present challenges.

Disorders of the dermis and the nails on the feet are common. Despite the simplicity of the skin and nail disorders of the foot, they can be debilitating and impact the patient’s ability to ambulate and perform activities of daily living. Diagnosis in most cases is confirmed on physical examination alone. Diligent care of skin and nail disorders can prevent further pathology involving the deeper structures of the foot and allow the patient to fully participate in their usual activities.
Hallux Valgus

Paul J. Hecht and Timothy J. Lin

Hallux valgus is a common foot problem whose cause and progression is multifactorial, complex, and poorly known. Hallux valgus shows a predilection toward women. It is a progressive disorder with no treatment known to slow or stop progression. Surgery is indicated in healthy individuals when nonoperative measures fail. Adverse effects of surgery include infection and recurrence. Many procedures have been described, including soft tissue and bony reconstruction of the first ray. The procedure that is indicated depends on the severity of the deformity.

Metatarsalgia, Lesser Toe Deformities, and Associated Disorders of the Forefoot

John A. DiPreta

Foot pain in the adult often alters mobility and has a negative impact on quality of life. Metatarsalgia describes pain localized to the forefoot. Forefoot pain may be caused by conditions of the lesser toes themselves (eg, hammertoes, mallet toes, claw toes). The pathophysiology of lesser toe deformities is complex and is affected by the function of intrinsic and extrinsic muscle units. In addition to lesser toe and metatarsal abnormality, forefoot pain can be attributed to interdigital neuritis, disorders of the plantar skin, and gastrocsoleus contracture. Treatment of these conditions may include shoe modifications, appliances, therapeutic exercises, and surgical repair.

Arthritis of the Foot

Samuel G. Dellenbaugh and Jorge Bustillo

Arthritis of the foot can be a difficult problem. It is initially managed with antiinflammatory medications and footwear modifications or bracing. However, a significant percentage of people with arthritis of the foot go on to require surgical intervention, which is most commonly arthrodesis.

Ankle Arthritis: Review of Diagnosis and Operative Management

Robert Grunfeld, Umur Aydogan, and Paul Juliano

The diagnostic and therapeutic options for ankle arthritis are reviewed. The current standard of care for nonoperative options include the use of nonsteroidal antiinflammatory drugs, corticosteroid injections, orthotics, and ankle braces. Other modalities lack high-quality research studies to delineate their appropriateness and effectiveness. The gold standard for operative intervention in end-stage degenerative arthritis remains arthrodesis, but evidence for the superiority in functional outcomes of total ankle arthroplasty is increasing. The next few years will enable more informed decisions and, with more prospective high-quality studies, the most appropriate patient population for total ankle arthroplasty can be identified.

Office-Based Management of Adult-Acquired Flatfoot Deformity

Sara Lyn Miniaci-Coxhead and Adolph Samuel Flemister Jr

Adult-acquired flatfoot deformity is associated with dysfunction of the posterior tibial tendon, leading to loss of the medial arch. Patients tend
to present with medial pain and swelling, but later in the disease process can also present with lateral-sided pain. The mainstay of nonoperative treatment is nonsteroidal anti-inflammatory drugs, weight loss, and orthotic insoles or brace use. The goals of therapy are to provide relief of symptoms and prevent progression of the deformity. If nonoperative management fails, a variety of surgical procedures are available; however, these require a lengthy recovery, and therefore patients should be advised accordingly.

The Cavus Foot

Andrew J. Rosenbaum, Jordan Lisella, Nilay Patel, and Nani Phillips

The cavus, or high-arched, foot can present in either childhood or adulthood as a function of muscle imbalance. Neurologic, traumatic, and idiopathic processes have been identified, along with residual clubfoot, as the primary causes of adult cavus foot deformity. A thorough history and physical examination is important and can help identify the underlying cause of deformity. Conservative treatment modalities are always used first, with surgical intervention reserved for refractory cases. The goal of surgery is to correct muscle imbalance, which can be achieved via tendon transfers, corrective osteotomies, and, in the most severe cases, fusion.

Ankle Sprains and Instability

Cory M. Czajka, Elaine Tran, Andrew N. Cai, and John A. DiPreta

Ankle injuries are among the most common injuries presenting to primary care providers and emergency departments and may cause considerable time lost to injury and long-term disability. Inversion injuries about the ankle involve about 25% of all injuries of the musculoskeletal system and 50% of all sports-related injuries. Medial-sided ankle sprains occur less frequently than those on the lateral side. High ankle sprains occur less frequently in the general population, but do occur commonly in collision sports. Providers should apply the Ottawa ankle rules when radiography is indicated and refer fractures and more severe injuries to orthopedic surgery as needed.

Achilles Tendon Disorders

Steven B. Weinfeld

Achilles tendon disorders include tendinosis, paratenonitis, insertional tendinitis, retrocalcaneal bursitis, and frank rupture. Patients present with pain and swelling in the posterior aspect of the ankle. Magnetic resonance imaging and ultrasound are helpful in confirming the diagnosis and guiding treatment. Nonsurgical management of Achilles tendon disorders includes nonsteroidal anti-inflammatory drugs, physical therapy, bracing, and footwear modification. Surgical treatment includes debridement of the diseased area of the tendon with direct repair. Tendon transfer may be necessary to augment the strength of the Achilles tendon.

Plantar Heel Pain

Andrew J. Rosenbaum, John A. DiPreta, and David Misener

Plantar heel pain is a common complaint encountered by orthopedic surgeons, internists, and family practitioners. Although it is most often
caused by plantar fasciitis, this is a diagnosis of exclusion. Other mechanical, rheumatologic, and neurologic causes must be considered first. The history and physical examination are typically all that is needed to make the proper diagnosis, but diagnostic adjuncts are available to assist the clinician. When plantar fasciitis is diagnosed, conservative modalities must be tried first. Corticosteroid injections and extracorporeal shock-wave therapy may also be used. After 6 months of failed conservative treatments, surgical intervention should be considered.

Outpatient Assessment and Management of the Diabetic Foot

John A. DiPreta

Patients with diabetes and peripheral neuropathy are at risk for foot deformities and mechanical imbalance of the lower extremity. Peripheral neuropathy leads to an insensate foot that puts the patient at risk for injury. When combined with deformity due to neuropathic arthropathy, or Charcot foot, the risks of impending ulceration, infection, and amputation are significant to the diabetic patient. Education of proper foot care and shoe wear cannot be overemphasized. For those with significant malalignment or deformity of the foot and ankle, referral should be made immediately to an orthopedic foot and ankle specialist.