New Richie AeroSpring Brace System Can Replace Walking Boots

Three common pathologies are addressed via this patient-friendly technology.

BY DOUGLAS RICHIE, DPM

Podiatric physicians use walking boots, i.e., "CAM Walkers", on a routine basis to treat fractures, sprains, tendon injuries and post-operative conditions. These boots gained popularity over casts during the past 20 years because they are relatively inexpensive and have the advantage of allowing patients to remove them for sleeping and bathing.

The inconvenience and discomfort of walking boots often causes the patient to discontinue use, which leads to failure of treatment outcome.

Any clinician who has dispensed walking boots knows that these devices are not well received by patients, which often leads to non-compliance. The weight and bulk of walking boots often cause gait disturbances and proximal pain in the knees, hips and lower back. The inconvenience and discomfort of walking boots often cause the patient to discontinue use, which leads to failure of treatment outcome. When the boots are worn on the right lower extremity, driving an automobile is impossible.

Now a dynamic, lightweight carbon fiber bracing system offers a major advantage over walking boots for the treatment of several common foot and ankle conditions.

The Richie AeroSpring Systems combine a carbon fiber ankle-foot orthosis (AFO), graduated heel wedges and a pair of custom foot orthoses to specifically offload various structures of the foot and ankle. All of these systems allow the patient to wear a lace-up oxford-style shoe or an athletic shoe. A near-normal gait can be assumed and the patient can loosen the proximal straps and easily drive an automobile.

Testing with AFOs, Foot Orthoses, and Heel Wedges

Anterior strut, carbon fiber AFO braces have been used successfully for dropfoot conditions and other neurologic impairments for many years. A requirement when implementing this type of brace system has been the use of an insole or foot orthotic placed on top of the flat carbon fiber foot plate to protect and support the foot.

Recognizing the powerful dynamic control which carbon fiber braces can offer, Dr. Doug Richie began testing various types of foot orthoses combined with these AFO devices. He recognized that sagittal plane control of the carbon fiber AFO could be augmented with the frontal plane and transverse plane control of a custom foot orthosis. Dr. Richie further tested the enhanced off loading capacity of graduated heel wedges on the Achilles, which is a deforming force on the plantar

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New Concepts and Studies

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fascia and the midfoot joints.

Previously, Dr. Richie had designed and patented the Richie Arch Lock™ technology that is embedded into a custom foot orthosis. This technology is designed to stiffen or "lock" the midtarsal joint, decrease strain on the medial-central band of the plantar fascia, and facilitate proper functioning of the windlass mechanism.

Three Common Pathologies

After extensive testing and research, Dr. Richie discovered a powerful new "system" which combines a carbon fiber AFO brace with a pair of custom foot orthoses, the Arch Lock™ technology and various heights of graduated heel wedges. The combined effects of this system could address the deforming forces on three common pathologies currently treated with walking boots: plantar fasciitis, Achilles tendinopathy, and sprains of the midfoot joints.

The Richie AeroSpring Bracing System has handsome reimbursement from both Medicare and third party insurance payors.

The AeroSpring Plantar Fascia Offloading System is designed to address the three deforming forces on the plantar fascia. The AeroSpring carbon fiber AFO limits ankle joint dorsiflexion which offloads the Achilles—a known deforming force on the plantar fascia. The Richie Arch Lock™ technology, built into the custom functional foot orthoses, has proven offloading influence on the plantar fascia. The carbon fiber footplate of this system prevents extension of the hallux and limits loading of the windlass mechanism, which will also offload the plantar fascia.

The AeroSpring Achilles Offloading System provides an attractive alternative to walking boots, which are commonly used to treat Achilles tendinopathy. A recent trend to treat ruptures of the Achilles tendon requires long-term immobilization with walking boots, which may pose a great challenge with patient compliance. The custom foot orthotic combined with 20 mm heel wedges can work synergistically with the lightweight carbon fiber AFO of the AeroSpring Achilles System to offload the injured Achilles tendon. The ability of the patient to wear an athletic shoe with this bracing system and to carry out a near-normal gait will lead to far better patient compliance and favorable treatment outcome compared to walking boots.

Lisfranc or midfoot sprains are known to require long-term walking boot immobilization. Whether surgery is performed, or if a conservative treatment program is implemented, the patient faces many weeks and months of wearing a walking boot. With poor compliance, these treatments often fail. Now, a patient with a midfoot sprain can be managed with a lightweight carbon fiber AFO and a supportive custom foot orthosis which will offload deforming forces on the midfoot joints. The brace system can be worn in athletic shoes and a near-normal gait can be carried out by the patient. Comfort and compliance with the AeroSpring Midfoot Offloading System will assure a better patient outcome.

The AeroSpring Dropfoot Stability System is designed to address dropfoot conditions which are not amenable to treatment with the popular Richie Dynamic Assist brace. These conditions would combine a dropfoot with some instability of the knee as well as weakness of the posterior calf musculature. In cases of foot drop caused by stroke or nerve injury, where there is no spasticity and the knee is stable, the Richie Dynamic Assist Brace would be recommended. However, when there is some degree of posterior leg weakness or contracture, as seen in Charcot Marie Tooth disease, the Richie AeroSpring Drop Foot Stability System can provide additional support and improved gait efficiency. The dynamic carbon fiber AFO provides recoil to aid in push-off or propulsion during terminal stance while preventing foot drop during swing phase. The custom foot orthoses can balance and correct acquired foot alignment conditions such as rearfoot and forefoot varus deformities.

Reimbursement and Coding

The Richie AeroSpring Bracing System has handsome reimbursement from both Medicare and third party insurance payors. With a PDAC-approved carbon fiber AFO device, this component of the AeroSpring Bracing System has an average reimbursement of $800, under code L 1932. The custom foot orthoses are billed using the traditional code L 3000 for one pair. Total reimbursement to the treating podiatric physician can exceed $1200. Better yet, the patient can be expected to be far more comfortable and compliant compared to wearing bulky walking boots.

To order any of the four Richie AeroSpring Bracing Systems, the podiatric physician should contact any of the authorized Richie Brace® lab distributors. They can be found at http://richiebrace.com/index.php/to-order-providers.html.

These distributors can provide pricing, order forms and casting instructions.

The only requirement for the practitioner is taking an impression cast of both feet of the patient for fabrication of the foot orthotic devices. Plaster casts and digital scans are acceptable for the Richie AeroSpring Bracing Systems. *For further information, please visit www.richiebrace.com.* **PM**

Douglas Richie, Jr., is a Fellow and past president of the American Academy of Podiatric Sports Medicine. He is an associate clinical professor at the Western University School of Podiatric Medicine. He has practiced podiatric sports medicine for 36 years in Seal Beach, California. Dr. Richie is the inventor of the Richie Brace and is the founder of Richie Technologies Inc.