

## Richie AeroSpring

### Drop Foot Offloading System

#### Clinical Indication:

- ❑ Neurologic conditions resulting in foot drop or loss of posterior lower leg muscle strength

#### Features:

- ❑ Carbon fibre ankle foot orthosis ( make this a link to description) - controls ankle joint dorsiflexion and load on the Achilles tendon
- ❑ Custom functional foot orthosis (one pair) - controls rearfoot pronation, patented Richie ArchLock™ offloads the medial-central band of the plantar fascia
- ❑ Carbon fibre footplate with toe rocker - diminishes dorsiflexion of the MTP's and engagement of the windlass



Drop foot  
stability

#### Mechanism:

- ❑ Traditional solid shell plastic AFO braces designed to treat drop foot and provide support primarily during swing phase. (1-3)
- ❑ A carbon fibre AFO brace with medial strut can add an additional benefit of dynamic recoil during the third rocker to aid in push-off or propulsion. (4-5)

#### Mechanism:

- ❑ 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.
- ❑ Many neurologic conditions result in acquired foot deformity, so the addition of the custom balanced foot orthotic to the carbon fibre AFO allows this innovative Drop Foot Stability System to address all levels of the pathology.

- ❑ The lightweight dynamic features of the Richie AeroSpring Drop Foot Stability System allows the otherwise healthy patient to engage in walking or running for exercise. Dynamic carbon fibre AFO devices have shown ability to improve push off while optimizing energy expenditure during walking. (6-8) The possibility for participation in sport or exercise would not be possible with most bulky sold shell AFO devices, but is now feasible with a carbon fibre brace system.

### Contraindications:

- ❑ Severe instability of the knee. Mild to moderate instability in the sagittal plane can be controlled with the Richie AeroSpring System.
- ❑ Severe ankle joint contracture with equinus. The Richie AeroSpring System incorporates a carbon fiber brace with footplate aligned at 90 degrees. Some compensation can be achieved by incorporating a heel wedge to balance equinus.

### How to order:

#### Scanning:

- ❑ Take a scan of both feet (same as your foot orthotic scans)
- ❑ Email the scans along with a completed order form to [info@qol4feet.com.au](mailto:info@qol4feet.com.au)

#### Casting:

- ❑ Take a cast of both feet (same as your foot orthotic casts)
- ❑ Send the casts along with a completed order form to:  
QOL, 1/10 Christine Place, Capalaba, QLD, 4157

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### References

1. Park JH, Chun MH, Ahn JS, et al. Comparison of gait analysis between anterior and posterior ankle foot orthosis in hemiplegic patients. *Am J Phys Med Rehabil* 2009; 88(8): 630-634.
2. Lehmann JF, Condon SM, Price R, et al. Gait abnormalities in hemiplegia: their correction by ankle-foot orthoses. *Arch Phys Med Rehabil* 1987; 68(11): 763-771.
3. Gok H, Kucukdeveci A, Altinkaynak H, et al. Effects of ankle-foot orthoses on hemiparetic gait. *Clin Rehabil* 2003; 17(2): 137-139.
4. Wolf S, Knie I, Rettig O, Fuchs A, Do"derlein L. Carbon spring AFOs for active push-off. Abstract of 10th GCMAS meeting April 6-9 2005, Portland.
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6. Bartonek A, Eriksson M, Gutierrez-Farewik EM. A new carbon fibre spring orthosis for children with plantarflexor weakness. *Gait Posture* 2007;25(4):652-6.
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8. Danielsson A, Sunnerhagen KS. Energy expenditure in stroke subjects walking with a carbon composite ankle foot orthosis. *J Rehabil Med*. 2004;36(4):165-68.