

## Fact Sheet

# Custom Ankle Foot Orthoses

**Complex mobility solutions unique to individual patients' needs.**

### Introduction

Ankle Foot Orthoses (AFOs) are external devices fitted to the body which are used to:

- Improve or prevent a physical deformity
- Reduce pain
- Reduce the risk of tripping over
- Stabilise a joint or joints
- Improve mobility or performance
- Reduce the risk of injury

AFOs are semi-rigid L-shaped braces used to stabilize both the foot and ankle to bring muscles and joints into alignment. The braces extend up the calf, and are typically made of metal or hard plastic; they have straps that can connect together to hold the device in place, and bring stability to foot, ankle, knee and lower leg by immobilizing it. These are also used to correct foot drop. AFOs account for approximately 25 percent of all orthoses used in the United States. (Cerebral Palsy, 2018)

Ankle foot orthoses are made according to the specific needs of each person. They are made in many different styles according to the medical, biomechanical and environmental needs of the individual. A variety of AFOs exist to treat a patient's needs including: anti-Talus AFOs, Rigid AFOs, Tamarack Flexure Joint AFOs, Solid AFOs, Spiral AFOs, Hemispiral AFOs, Hinged AFOs, Tone-Reducing AFOs, and Posterior Leaf Spring AFOs. They can be fabricated using different materials depending on the circumstances identified in the assessment including:

- Metals
- Plastic
- Carbon fibers
- Leather
- Silicone
- Rubber

The medical conditions that are treated by AFOs are wide ranging. A representative but not exhaustive list includes:

- Stroke
- Cerebral Palsy
- Acquired Brain Injury
- Muscular Dystrophy
- Spinal Cord Injury
- Diabetes
- Spina Bifida
- Polio
- Multiple Sclerosis
- Arthritis (Rheumatoid and OA)
- Congenital Anomalies
- Guillian Barre Syndrome
- Charcot Marie Tooth
- Peripheral Neuropathy
- Hemiplegia

AFOs have been used for many years to help manage the gait (walking pattern) to reduce unwanted and uncontrolled movements associated with muscle imbalances, weakness or increased tone (tightness) in the lower leg and the foot and ankle.

### AFO Expertise

The current training benchmark for adequate entry to practice knowledge for AFOs has been established by the Certified Orthotists. Certified Orthotists are the professional leaders in the treatment of conditions utilizing AFOs. A practice analysis study indicated that 70% of a Certified Orthotist's clinical time is spent in lower extremity orthotic areas and the majority of that time is spent on treatments with AFOs. (Professional Examination Services, 2014)

The prosthetic and orthotic post degree programs at the two accredited schools in Canada (BCIT & GBC), are two-year, full-time, post-degree programs. To gain entry, candidates must have completed a degree in Science or an equivalent area (biomechanics, engineering, kinesiology, etc.) The P&O programs contain elements of didactic training as well as an emphasis on hands on training through clinical training in clinical settings and laboratory training in functional labs. The curriculum at the accredited schools contains the following number of hours of instructions specific to AFOs over the two year program:

Didactic - 80 hours      Laboratory - 100 hours      Clinical - 100 hours



***(continued on reverse)***

These hours DO NOT include the courses for the foundational knowledge required to understand the medical conditions and acquire the biomechanical and anatomical expertise to effectively treat patients with an AFO. Nor do these hours include the practical experience obtained in AFO treatments during the 2 year residency program following the post-degree P&O programs.

Knowledge is provided in areas as:

- Biomechanics
- Anatomical landmarks (surface anatomy)
- Tissue characteristics/management
- Musculoskeletal anatomy, including upper limb, lower limb, spinal
- Neuroanatomy and neurophysiology
- Kinesiology, including upper limb, lower limb, spinal
- Planes of motion
- Pathologies (e.g., muscular, neurologic, skeletal, vascular)

AFOs are complex orthoses requiring considerable foundation knowledge and practical training to properly assess the causes of mobility deficiencies for the development of AFO treatments that are appropriate and ensure patient safety.

### Increasing Concerns about Untrained Providers

Orthotics Prosthetics Canada is aware of providers that are inadequately trained and rendering AFO treatments. Certified Orthotists CO(c) are seeing AFOs that have been fabricated at the wrong angle, improperly fit causing skin breakdown and incorrect devices causing co-morbidities of the knees and other joints. CO(c)s are also discovering that patients with conditions that could be covered by provincial health care coverage are not being informed of their eligibility and are therefore paying for the devices out of pocket or through private health insurance.

The risks associated with obtaining AFO treatments from inadequately trained providers include:

- Falls
- Co-Morbidities
- Maladies not corrected
- Skin Breakdown
- Pain
- Financial burden

Certified Orthotists are the only authorized providers of AFO treatments by provincial governments (except Quebec) and are eligible to submit claims for provincial health care reimbursement. This is due to the recognition of their over 50 years of expertise and training in this area.

Provincial health care departments, policy makers, insurance companies, health professionals and the public should be aware that Certified Orthotists CO(c) are the highest trained and most knowledgeable profession regarding AFOs. Referrals for treatments requiring specialized bracing expertise should be made to a Certified Orthotist CO(c). You can locate a CO(c) anywhere in Canada at: [Find A Professional](#)

### Orthotics Prosthetics Canada

Orthotics Prosthetics Canada (OPC) is the representative national organization for the prosthetic and orthotic profession, including 450 clinicians, 150 technicians plus students, interns, residents, and retired members. OPC's role is to protect the public and advance the profession through quality standards of practice, professional credentialing, continued education, advocacy, and regulation.

Certified Orthotists are a self-regulated profession and are bound to ethical conduct and accountable to an arm's length Professional Practice Sub-Committee.

#### For More Information:

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