



Advanced Custom
Carbon Orthotic Designs

Blatchford
Clinic



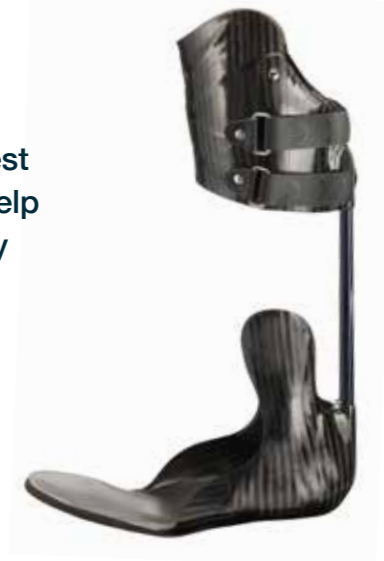
Custom Carbon Orthotics

Blatchford's custom carbon orthotic products represent the very latest advancements in orthotic technology and have been developed to help restore function and independence in patients who have lost mobility following injury, disease or congenital conditions.

Unique Prescription

Our patients' needs are at the heart of our orthotic design.

Every patient undergoes a personalised evaluation from one of our expert orthotists, who specialise in the latest custom carbon designs. Together they will set realistic goals to help ensure the user achieves their fullest rehabilitation potential.



Advanced Materials, Optimised Designs

Pre-impregnated ('pre-preg') composites such as carbon fibre are best known for their use in aircraft and Formula One racing cars and more recently in the running blades of Paralympic sprinters.

These materials allow for ultra-lightweight orthotic designs that can be both rigid and flexible within the same structure, taking design possibilities to a new level and offering many benefits:

- **Strong and durable** - high level of stiffness and fatigue limits make it ideal for the most active of users. Significantly more durable than conventional orthoses, they retain their functionality longer.¹
- **Light weight and slim line** – composites provide the most lightweight orthotic solutions. Because of the strength of the material, the orthosis can be made thinner to be more easily accommodated within a shoe.
- **Energy efficient** - proven energy storing capability can be capitalised on within our orthotic design, helping provide energy return exactly where the user needs it.
- **Bespoke style** – customised designs allow for varied stiffness or flexibility, bespoke to the user's individual needs.
- **Easily repaired** - unlike plastic and metal orthoses, composite orthoses lend themselves to repair.

1. Hachisuka K, Makino K, Wada F, Saeki S, Yoshimoto N, Arai M. Clinical application of carbon fibre reinforced plastic leg orthosis for polio survivors and its advantages and disadvantages. Prosthet Orthot Int.2006;30(2):129-135.

Clinical Services

On a regular basis Specialist multi-disciplinary clinics are held in our Sheffield clinic. The service includes a joint orthotic and physio assessment followed by a casting and checking of the fitting all on the same day, with just one further appointment to fit and supply the brace only two weeks later.

With purpose-built pre-preg carbon fibre manufacturing facilities on-site, our orthotists work closely with the manufacturing team to ensure an optimal design specification for each individual user's needs.

Our orthotists can also treat patients in our Stoke, Kettering and Basingstoke clinics however 3 separate appointments will be required at these locations.

Tailored Rehabilitation

For best results we recommend that tailored, intensive rehabilitation is undertaken when new orthoses are prescribed. Evidence suggests that results are 30% better² when combined with a tailored rehabilitation programme.

Blatchford Clinic provides bespoke out-patient or intensive residential rehabilitation packages to help achieve long term rehabilitation goals, whether they are to walk pain-free or to return to sports such as running.

Our specialist Physiotherapists are experienced in working with advanced orthotic devices and can ensure the user learns to walk and run again in the most efficient way. They can also help to identify other areas of muscle imbalance and provide general strength and conditioning work to ensure the best functional outcomes are achieved.

2. Bedigrew KM, Patzkowski JC, Wilken JM, Owens JG, Blanck RV, Stinner DJ, Kirk KL, Hsu JR. Skeletal Trauma Research Consortium (STReC). Can an Integrated Orthotic and Rehabilitation Program Decrease Pain and Improve Function after Lower Extremity Trauma? Clin Orthop Relat 2014



Suitability

Our expert orthotic team can design an orthosis that best meets each user's individual needs and are suitable for a wide range of both orthopaedic and neurological conditions.

Orthopaedic Indications

- Osteoarthritis
- Knee, ankle or foot trauma/fracture
- Ankle or foot fusion
- Congenital Talipes Equino Varus (Clubfoot)
- Partial foot amputation

Neurological Indications

These patients are more likely to require support for muscle weakness and may require resistance against a pull of tone or spasticity. Common neurological presentations include:

- Cerebrovascular accident (stroke, CVA)
- Head injury
- Brain trauma
- Multiple sclerosis
- Cerebral palsy
- Hemiplegia
- Spinal cord injury
- Lumbar spinal stenosis
- Spina Bifida
- Charcot Marie Tooth
- Guillain-Barre syndrome
- Hereditary motor neuropathies
- Hereditary spastic paraplegia
- Muscular dystrophy
- Neuropathy





Momentum® is an orthotic brace designed to deflect body weight and stabilise the ankle to improve mobility and minimise pain for the user.

Momentum® uses carbon composite struts that work much like prosthetic running blades to store and return energy to provide a spring in your step and enable participation in high impact activities such as running.

Each brace is bespoke with optimal alignment, spring strength and off-loading tailored to each individual user.

Momentum® can be effective in treating patients experiencing chronic pain, weakness or instability at the foot and ankle. This can be due to some congenital conditions; following complex lower limb injury, as well as for the neurological patient group as it helps replace weakness of the plantar flexors, enabling active push-off.

Momentum® is especially effective when combined with physical rehabilitation. Published research has shown this style of brace to be 30% more effective when combined with a tailored rehabilitation programme.²

MOMENTUM



The original design for Momentum® was introduced to the UK Ministry of Defence (MoD) by the US military.



Blatchford have been the clinical service provider for prosthetic and orthotic services to the MoD for over 10 years. One of the services Blatchford offers is to fit braces to military personnel with complex ankle trauma that may have otherwise elected to have an amputation. The development of Momentum® has enabled many injured service personnel to return to a fully active lifestyle which previously wouldn't have been possible, and is now available to civilians through Blatchford Clinic.

2. Bedigrew KM, Patzkowski JC, Wilken JM, Owens JG, Blanck RV, Stinner DJ, Kirk KL, Hsu JR. Skeletal Trauma Research Consortium (STReC). Can an Integrated Orthotic and Rehabilitation Program Decrease Pain and Improve Function after Lower Extremity Trauma? Clin Orthop Relat 2014



Ankle Foot Orthoses (AFO)

Blatchford offers a full range of AFOs that provide support and alignment control at the ankle and foot. An AFO can be designed to limit motion when required, or tailored to allow ankle motion with dynamic assistance to improve walking symmetry.

There are many types of ankle joint available which introduce free, controlled or assisted motion, to ease movement when walking on stairs or slopes.

Knee-Ankle-Foot Orthoses (KAFO)

Our KAFO products are designed to support the knee, ankle and foot joints and to control movement throughout the full length of the lower limb. This can help relieve painful motion and improve mobilisation due to lower limb weakness.

There are many knee and ankle joint components that can be used for focused movement or immobilisation. These include stance phase control knee joints which provide full stability upon weight bearing, and release on swinging the leg through. This provides the KAFO user with a more natural and energy efficient gait pattern.



Knee Orthosis

This orthosis focuses on protection of the knee joint when the foot and ankle are not affected.

Blatchford's range of custom made knee orthoses help ensure a total contact fit for comfort, support and natural movement.

Insoles

Offering both dynamic and rigid properties, Custom Carbon insoles are slim line, for easier fitting in footwear. They provide total contact to help redistribute plantar pressures and improved biomechanical control.



“This brace has enabled me to get back on a bike, giving me a snippet of my former life back. I can now get back out with my friends and family again.” Matt

Matt

Matt began his career as an infantry soldier for the British Army in 1989. He served in the army for two years until an accident whilst on a tour of duty in Northern Ireland in 1991, left him severely injured.

With a fractured tibia and fibula, Matt underwent several unsuccessful surgeries to try and manipulate the fractures back into position before his bones were fixed in place with metal fittings.

After several years of recurrent pain, infection, neuromas and multiple surgeries including subtalar and ankle joint fusion, Matt began to consider the possibility of amputation and contacted the British Limbless Ex-Service Men's Association (BLESMA) for advice on the prosthetic options that were available to ex-service personnel. He was told by them that there was a new ankle foot orthosis that may be an option for him, Momentum®.

In July 2015, Matt met Nicole Bennett, Clinical Lead Orthotist, at Blatchford Clinic in Basingstoke to be cast for the brace and he returned to Basingstoke in early August to take delivery. Matt admits that he didn't believe it would help. However, when he put the brace on it immediately felt different and he was able to walk without any aids for the first time in years.

On 1 March 2016, after being off work for 6 years, Matt went back to work for the County Council. There were no workplace adaptations or adjustments required. Matt is able to operate in his work place completely unencumbered by his injury and his complex medical history and disabilities are now behind him. It's somewhat appropriate then, that he now works as part of the community enabling team working with people with long-term medical conditions.



Real Life Stories

Emily

After breaking her ankle in a horse riding accident over 10 years ago, the Momentum® brace is allowing Emily to run again.

In 2005, Emily's ankle was crushed when she and the horse she was riding fell. Emily's ankle was so badly damaged that she required several operations, in addition to joint injections and physiotherapy. She was unable to walk or stand for long periods of time without pain and spent months recovering with the aid of crutches and a wheelchair. As a last attempt to reduce her pain, Emily was considering having her ankle fused or even having her lower leg amputated.

In 2015, Emily discovered Momentum® whilst searching the internet and social media for alternative treatment options for her ankle injury. Emily visited the Blatchford Clinic in Sheffield and a bespoke Momentum® brace was manufactured on site in December 2015.

Using Momentum®, Emily now walks for up to four hours every day as a dog walker and reached her goal of completing several 5k runs, including the Parallel London event at the Olympic Park in September 2016. Emily has now reached a personal goal of taking part in a 10k run and plans to do many more.



“I'm in the gym every day, I can run and I'm able to walk over much tougher terrain than I've managed in a long time. I can't tell you what that means, it's changing my life. I'm shocked at how easy it is to do day-to-day stuff when you're not in pain; it had been so long that the pain had become normal.” Emily

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