

HELIOS® CUSTOM FABRICATION PROCESS

Do you know what the fabrication process is to custom make a Helios® Energy Loading Orthosis?

Initial Consultation

It starts with initial consultation; patient case history is taken, along with manual muscle testing; joints are examined to determine extent of deviation and angular deficiencies. This is followed up with videotaping of your gait.

Casting procedure

2-stage molds are made of each patient's leg, as no two Helios® are alike. Structural deformities and joint alignment deviations are corrected as much as possible during initial casting.

Modifications and Test Braces

Plaster of paris positive molds are made from the casting. Molds are carefully corrected for overall fit, alignment, comfort, balance, and function. We use tri-planar corrections. Additionally, angles are measured to correct for balance and stability. From these molds, we initially fabricate floor reaction test braces out of advanced thermoplastic materials. What we call a test brace anyone else would call a "permanent thermoplastic custom floor reaction AFO". The test braces are fabricated and fit on the second day of your office visit. With the test braces we evaluate your overall fit, comfort, alignment, corrections, balance, stability, and initial gait. Once the test braces are fit, notations are made on them along with a video of the fit. The test braces are poured with plaster in order to make a new set of leg molds. With the new molds, we modify them for further corrections. Finally, we prepare the molds for the final carbon fiber Helios®, which will incorporate a 7-stage Helios® framework.

The Helios® Fabrication Process

The Helios® orthoses are fabricated with approximately 30 different layers of aviation grade carbon fiber and kevlar. This takes two days to complete. We use the most advanced composites in order to produce an energy loading device to give you; energy release in your gait, balance and stability, and joint alignment corrections. You will be fit with your custom Helios® orthosis on the fourth day of your visit. After the initial fit, any necessary adjustment will be made. You will also start the process of learning how to walk with stability and balance.

Day 5 Follow Up

Your final follow up is performed on the fifth day of your visit. Any further adjustments, if necessary, will be made. You will receive further instruction on proper gait with the Helios®, as well as learning techniques for going up and down street curbs.

As the saying goes; “Practice Makes Perfect”, and we will work with you to teach you proper biomechanics for you to practice to learn how to walk more normally with greater balance and stability.

Helios® in Comparison to Other Carbon Fiber Braces

The most common other type of carbon fiber AFO is of the off-the-shelf variety. This comes out of a box and can be fit in approximately 15 minutes. There are no tri-planar corrections of the foot and ankle, and no corrections built in to help prevent further deformity. They are mostly fit in small, medium, and large, left and right sizes. They are “not custom made”.

We hope this section of our website gives you an idea of what goes into the making of a Helios® orthosis, and the complex process of overall fabrication. We welcome all questions.