

## Superglass®

Superglass functional orthotics incorporate today's most advanced fiberglass/graphite/epoxy resin components, a patented reinforcement system and a proprietary manufacturing technique. 1.5 mm thin (less than 1/16") no matter how rigid or flexible.

### Options

Flex // Thin and semi-flexible composite.

For geriatrics and adults requiring control with a bit of flexibility.

Everyday // A semi-rigid foundation - the perfect blend of control and flexibility to comfortably treat most patients.

Recommended for day-to-day use for most adults; light to moderate activities like walking, jogging or casual athletics; the majority of children. Most commonly prescribed Superglass option.

Proformance®// Amazingly thin & rigid orthotics for serious athletes or patients who require a firmer device.

Recommended for moderate to competitive athletes participating in activities like running, basketball, tennis, soccer, football or other high impact sports; extremely active males ages 15 to 30; adults who require or prefer more control.

## NCV

The foundation of NCV is a carbon fiber-reinforced engineered nylon developed specifically for our next-generation custom orthotics.

Nearly as thin as our Superglass composite, NCV strikes a compelling balance between form, function and value.

Features softer medial and lateral edges for increased peripheral soft tissue accommodation. Approximately 2.5mm thin through the center and 1.5mm thin on the medial and lateral edges.

For patients who weigh 250 pounds or less.

### Options

Gentle // Rigidity of shell is comparable to Superglass Flex. Provides mild support along the long axis of the device.

For patients that require a functional orthotic that's "forgiving" underfoot. Offers a high level of patient compliance.

Firm // Rigidity of shell is a hybrid between Superglass Flex and Superglass Everyday. Provides moderate support along the long axis of the device.

Hits the sweet spot for many patients - light-to-moderate activity level, semi-flexible support and a high degree of comfort. Most commonly prescribed NCV option.

## Prescription Comfort™ (PC)

Premium accommodative orthotics offering comfort and light control. A thin and flexible composite shell is built in so devices don't lose their shape or "bottom out."

With a maximum total thickness of 4.0mm, Prescription Comfort devices fit in nearly any shoe (no extra-depth shoes required). A full-length (Complete) X-Guard on the plantar surface is standard.

### Options

Multi-Density // Our most accommodative orthotics featuring a very flexible composite shell with a layer of pre-stressed, dual-density foam. Add a top cover (required, soft EVA recommended) and additional cushion as needed.

Ideal for diabetics or patients seeking maximum comfort.

Composite // A hybrid between accommodative and functional orthotics with a flexible composite shell topped with a layer of pre-stressed foam. Add a top cover (required, vinyl recommended) and additional cushion as needed.

Ideal for treating diabetic, geriatric, pre- and post-surgical patients and those with chronic foot disorders. Comfort-focused without sacrificing control. Most commonly prescribed PC option.

## No top cover

Shell material only - a custom orthotic in its purest form.

### Pros:

Same as 3/4-Length, plus: No top cover cover/cushion to wear out. Very high durability. Lower cost.

### Cons:

Same as 3/4-Length, plus: Can tear nylons. Can be more slippery.

## 3/4-Length

Extends from heel to end of orthotic shell. Can feature only a top cover (e.g. vinyl) or a cushion + top cover (e.g. soft EVA + vinyl).

### Pros:

Will fit in even the most low-profile shoes (dress, soccer cleats, etc.). Easy to move from shoe to shoe.

### Cons:

Limited accommodations. Exposes forefoot to the unfinished interior of the shoe. Less positional stability within the shoe.

## Sulcus

Extends from heel and ends proximal to the phalanges. Requires additional forefoot cushion. Infrequently prescribed.

### Pros:

Provides cushion for the met heads, but allows for additional space in the toe box.

### Cons:

Drop off from the distal edge of the top cover to the inside of the shoe can be irritating for some patients.

## Full-length

Extends from heel to toe. Requires additional forefoot cushion/extension.

### Pros:

Helps keep orthotic properly positioned inside shoe. Is a direct replacement for the sock liner found in most shoes. Allows for a full array of options/accommodations. Assists shock absorption for the forefoot.

### Cons:

Can cause shoe fit issues, depending on the shoe type and cover/cushion used. May be somewhat difficult to move from shoe to shoe. Forefoot/extension will eventually wear out.

## Posting

### Heel post

Also known as a rearfoot post. Crafted from a proprietary thermoplastic rubber that slightly compresses and rebounds with each step.

- Flat/vertical: Immobilizes the subtalar joint at the moment of heel contact and attempts to maintain the calcaneus in a vertical position. For tarsal coalitions, flat feet associated with muscle spasm or any time that the prime concern is for stability.
- Varus: Is generally  $4^\circ$  but could be  $6^\circ$  (rarely more). This places the heel 4 (or 6, or 8) degrees inverted at heel contact and permits the calcaneus to evert to perpendicular. The post mandates motion in the subtalar joint for normal locomotion.

### Heel lift

A heel lift decrease the tension on the Achilles tendon and reduces the pronatory force of the foot. Heel lifts greater than 1/8" can raise the heel out of the shoe.

Heel lifts of up to 1/2" are available to correct limb-length discrepancy.

### Forefoot post

Crafted from a proprietary thermoplastic rubber that slightly compresses and rebounds with each step.

Extrinsic forefoot posting controls the foot better than intrinsic forefoot correction. However, extrinsic forefoot posting requires increased shoe volume & can be destructive to the shoe.

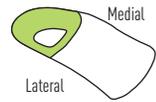
Keep extrinsic posting to 3 to 4 degrees. Further correction should be intrinsic.

## Heel

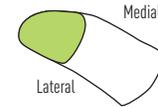
### Deep heel cup

More fully encapsulates the plantar, lateral, medial and posterior aspects of the heel. Adds lateral stability and reduces heel pain (increases weight-bearing area and decreases direct pressure). Can help stabilize foot on the orthotic.

### Donut cushion

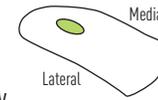


### Heel cushion

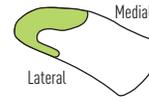


### Medial heel skive

Flat area on medial aspect of heel cup (intrinsic varus wedge). Increases the supinatory force to the subtalar joint. Often used with a heel post for increased stability.



### Horseshoe cushion



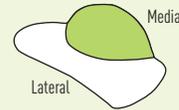
### Medial accom.



## Arch/midfoot

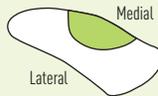
### High medial overlay

Like scaphoid pad, but pad extends past the medial edge of the device. Can help prevent medial edge of the orthotic from digging into the medial arch of the foot.



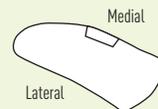
### Scaphoid pad

Supports the talonavicular joint, decreasing the medial displacement of the midfoot. Pad ends at medial edge of device.

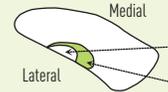


### Flatten plantar medial

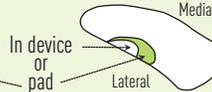
Flattens medial border of orthotic only. Forms a flatter lip on the high point of the arch. More comfortable for high arches.



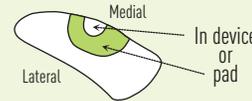
### Base of 5th/styloid



### Cuboid accom.

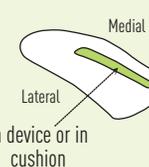


### Navicular accommodation



### Plantar fascia accommodation

Linear channel in the device or cushion underlying the medial slip of the plantar fascia.



### High medial/lateral

High flanges on medial and lateral aspect of device. Increases control of rearfoot/midfoot. Potential for irritation on high medial.

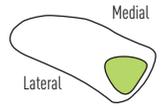
## Metatarsal

### Cutouts

Available in device or in cushion. Reduces weight-bearing, providing a sweet spot for met heads 1 to 5.

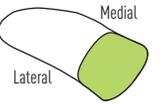
### Met pad

Available in soft and firm. Firm is default.



### Full met pad

Pad to support metatarsal arch and increase loading of met shafts and decrease loading of met heads prior to heel off.

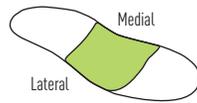


### Met raise (in shell)

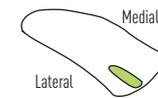
Same as a met pad, but in shell. Generally lower than a met pad as it can cause pain if too high or too distal.

### Dancer's pad

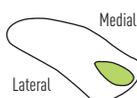
Pad across distal 1/3 of met shafts to base of toes. Allows for cutouts to offload a given metatarsal.



### Neuroma pad



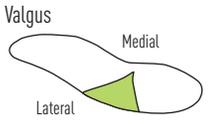
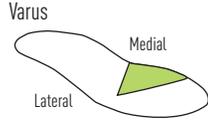
### Shaft pad



## Forefoot

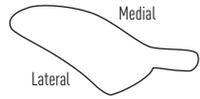
### Forefoot wedge

Wedge shaped extension from distal end of orthotic shell to toes. Provides inversion or eversion positioning on foot after heel raise. A less aggressive alternative to a forefoot post.



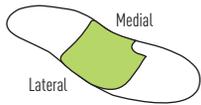
### Morton's extension

Soft in-cushion extension elevates met and limits motion. Rigid in-device extension prevents motion.

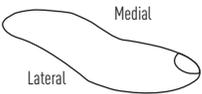


### Reverse Morton's extension

Allows the 1st metatarsal to plantarflex below the plane of the lesser metatarsals, thereby relatively increasing the dorsiflexion available at the 1st MTPJ. Useful for hallux rigidus/DJD of the 1st MTPJ. Available in device or in cushion.



### Hallux accommodation



### Toe crest accommodation



## Tips for Northwest Select Orthotics

### Everyday

- Most popular configuration for patients with average activity level and general foot pain.
- Designed to fit in nearly any type of footwear.
- Add a heel post if extra lateral stability is desired.

### Dress

- Heel below 1.5" - Slightly narrower design with softer cushion and more luxurious top cover.
- Heel above 1.5" - Extra narrow design. Only 1.1mm thin. For heels 1.5" to 4.0". Restores natural balance.

### Athletic

- "Low profile shoes" - For lower-volume shoes where space for an orthotic is limited (soccer cleats, sleek running shoes, etc.).
- "Standard/high profile shoes" - For standard/high volume shoes (e.g. traditional running shoes, basketball shoes, etc.). Blend of firm support and shock absorption for high impact activities.
- "Standard/high profile shoes + stability" - Same as "standard/high profile shoes" with the addition of a heel post for additional lateral stability. Adds minimal bulk, but may cause heel to "pop out" of some shoes.

### Amputee

- Utilizes custom-shaped foam to replace missing toes or portions of patient's foot.
- Orthotic features moderately flexible shell and multiple layers of foam to provide support and decrease irritation and hot spots.

## Additional pathologies

### Achilles tendinitis

- Superglass Everyday.
- Deep heel cup with high lateral flange.
- Heel post (consider heel lift, bilateral).

### Ataxic gait

- Very deep heel cup.
- Vertical forefoot post.
- Vertical rearfoot post.
- Forefoot extension (full).

### Bunion/hallux valgus

- Superglass Everyday.
- Heel post.
- Reverse Morton's extension.

### Charcot-Marie-Tooth

- Superglass Performance.
- Forefoot post with 3 or 4 degrees of correction (remaining correction intrinsic).
- Vertical heel post.

### Elevated first ray

- Deep heel cup.
- Forefoot extension.
- Morton's (in cushion).

### Haglund's deformity

- For regular shoes - orthotic with heel post.
- For shoes with heels above 1.25".

### Hallux rigidus

- Morton's extension (in device) with additional dorsiflexion.

### Plantarflexed first ray

- Cutout, 1st (in-cushion).
- Reverse Morton's extension.

### Rigid cavus foot

- Flatten plantar medial.
- Correct first four degrees of valgus extrinsically and correct the remainder intrinsically.

### Shin splints

- Superglass Everyday.
- Deep heel cup.
- High medial overlay or scaphoid pad.

### Tailor's bunion

Forefoot varus:

- Correct intrinsically.

Forefoot valgus:

- Correct 3 to 4 degrees extrinsic and correct remainder intrinsic.

### Vinyl (most popular top cover)

- High quality synthetic leather.
  - Top cover only.
- Pros:
- Durable with a long lifespan.
  - Very similar in appearance to leather.
  - Available in four colors (charcoal, dark brown, gray-tan and blue-gray).
- Cons:
- Not breathable.
  - Can feel “slippery” to some patients.
  - Can curl and crack over time.
- Common uses:
- Every day orthotics for most patients.
  - When durability is important (children, teenagers, work boots, etc.)

### Firm EVA (most popular cushion)

- Low density, closed-cell EVA foam (1/16" or 1/8").
  - Cushion/extension or top cover.
- Pros:
- Very durable.
  - Won't absorb perspiration.
  - Excellent shock absorption.
  - Molds slightly to the foot, but “rebounds” when not in use.
- Cons:
- Not a “soft” material.
- Common uses:
- Great all-purpose cushion material.
  - Most functional orthotics.

### Leather

- Natural leather with light grain.
  - Top cover only.
- Pros:
- Luxurious feel.
  - Durable.
  - Complements high end shoes.
- Cons:
- Can bleed, discolor and/or smell.
  - Cost.
- Common uses:
- When aesthetics are important (e.g. sandals, dress shoes, high heels, etc.).
  - Patients with allergies to man-made materials.

### Soft EVA

- Closed-cell EVA foam (1/16" or 1/8").
  - Cushion/extension or top cover.
- Pros:
- Compresses and molds to the foot.
  - More durable than popularly prescribed Plastazote®.
- Cons:
- Can “bottom out”.
  - Can abrade or wear out more quickly than other materials.
- Common uses:
- Accommodative orthotics.
  - Geriatric patients.
  - Diabetics.

### Microsuede

- High-end synthetic suede fabric from a leading manufacturer.
  - Top cover only.
- Pros:
- Feels great under foot.
  - Not slippery.
  - Breathability.
  - Color won't bleed.
- Cons:
- Can “grip” patients' socks
  - Will eventually lose its soft, plush feel.
- Common uses:
- Excellent alternative to vinyl.

### PORON®

- Extra soft cushion.
  - Popular, orthotic-grade urethane foam (1/16" or 1/8").
  - Cushion/extension only.
- Pros:
- Great combo of softness & durability.
  - Widely used with long track record.
- Cons:
- Bottoms out somewhat quickly.
  - Can abrade or wear out more quickly than other materials.
  - Tears easily.
- Common uses:
- Accommodative devices.
  - Extra comfort for functional devices.

### Neoprene

- Synthetic rubber (1/16" or 1/8") with a fine weave cloth top layer.
  - Top cover + cushion combination.
- Pros:
- Top cover and cushion in one.
  - Good feel under foot.
  - Some breathability.
- Cons:
- Less durable than vinyl.
  - Can hold odors.
- Common uses:
- Athletic devices.

## Arch height & X-Guard

### Arch height

#### Standard (default)

Leaves some space between the patient's arch and the medial arch of the orthotic for foot elongation during gait.

#### High or very high

The orthotic is more intimate with the patient's foot and may appear to have a more “custom” or exact fit. Can cause arch pain for some patients.

#### Low

More comfortable for some patients, but may allow for overpronation.

### X-Guard

Adds durability by reinforcing the transition between the orthotic shell and extension. Aesthetically pleasing.