

Managing Gait Dysfunction



Functional Bracing with Adjustable Dynamic Response *only from...*


Ultraflex[®]
Patient Inspired Solutions

Unprecedented Stability and Motion

Ultraflex's Adjustable Dynamic Response (ADR)

A New Technology - Address the Entire Gait Cycle Providing Unrestricted Motion, Customized Stability, and Smooth Rollover

Treatment Specialties	Age Groups
Post-stroke	Adult
Post-polio	Adult
Crouch gait	Adolescent/adult
Drop foot	Adolescent/adult
Foot slap	Adolescent/adult

Biomechanical Rationale

Ankle

- Ultraflex ADR AFO uses the lower durometer (less stiff) elastomer to augment the tibialis anterior in early to mid stance. The higher durometer (more stiff) elastomer is used to augment the gastroc-soleus in mid to late stance.
- Traditional AFO designs which use stops to address “drop foot” in swing often impede gait in stance unnecessarily.
- ADR selectively augments and provides support for the tibialis anterior and gastroc-soleus muscles and alters their response to ground reaction forces (GRF) as needed.
- Ultraflex ADR restrains ROM, does NOT hold it or stop it (unless desired) as in traditional designs – offering natural ROM that is stabilized.
- ADR provides much greater motion (40° dorsiflexion and 40° plantarflexion) as compared to traditional double action ankle joint (DAAJ) (15° dorsiflexion and 15° plantarflexion).
- ADR provides sufficient force to restrain GRF whereas DAAJ only provides mild spring assist for toe pick up.

(Changing the restraint levels are accomplished with simple set screw adjustments.)

Knee

- Ultraflex ADR technology addresses the limitations of stance control KAFOs.
- ADR provides safe stance control without locking the knee - adjustable stance control angle from 0-30°.
- Prevents knee buckling when standing - ratchet support from 120° flexion to full extension.
- Ultraflex ADR KAFO provides an alternative that is more patient inclusive, technically elegant, and available through conventional coding and coverage.



What Do Patients Say About Their Ultraflex Adjustable Dynamic Response Brace?

“Walking naturally is easier with better control and no tiredness or pain.”

“I had no trouble using it right away. It fits great and is smooth and comfortable. I feel like I don’t have a problem.”

“When I went to the Ultraflex brace there was a tremendous difference. The improvement was like night and day.”

“Trust the stability. I do.”

Comprehensive Orthotic Management

ADR complements Ultraflex’s therapeutic line of stretching braces. Ultraflex stretching braces provide precise dynamic stimulus and proper posturing to lengthen and strengthen muscles and improve passive range of motion. Patients demonstrating greater than five degrees range of motion loss from normal at either the ankle or knee should be considered for Ultraflex therapeutic braces. Gains achieved with therapeutic braces may enable patients to be considered for an ADR brace.

Ultraflex’s therapeutic/stretching braces are available in both lower and upper extremity and are recommended for post-stroke, TBI, SCI, and spasticity from a cerebral origin.

Both Ultraflex ADR and therapeutic braces are available in pediatric versions. When prescribing Ultraflex’s Adjustable Dynamic Response (ADR) for patients under 110 pounds, please use the pediatric version, UltraSafeGait™.

To learn more:

Call: 800-220-6670

Visit: www.ultraflexsystems.com



General Guidelines for UltraSafeStep™

Common Clinical Presentations*	Common Clinical Measurements			Common Clinical Goals	Ultraflex Solution/Rx	ADR Component Channel Adjustments				ADR Knee Component Channel Adjustments
	Range**	Strength	First (Heel) Second (Ankle) Third (Toe) Rocker			Manage Gait (ADR)	Posterior Elastomer	Posterior Stop	Anterior Elastomer	
Extension Gait Moment	Ankle: Near to full ROM Knee: Near to full Knee ROM	Weak quadriceps, and tibialis anterior	First: mid or forefoot contact Second: no tibial progression Third: possible rollover at toe or early heel rise	Achieve Heel First Rocker, Tibial Advancement, Control Knee Hyperextension, Improve Gait Speed and Symmetry, Reduce Fatigue	Rx: Ultraflex Custom Molded ADR AFO with Posterior Band 	Near to fully compressed	Only if posterior elastomer compression alone does not control hyperextension	Little to no compression needed	Only if anterior elastomer compression alone does not create sufficient knee extension moment in mid to late stance	N/A
Extension Gait Moment	Ankle: Near to full ROM Knee: Near to full Knee ROM (must be able to get to within 10° full knee extension)	Weak hip flexors, quadriceps, and tibialis anterior	First: mid or forefoot contact Second: no tibial progression Third: possible rollover at toe or early heel rise	Achieve Heel First Rocker, Tibial Advancement, Control Knee Hyperextension, Improve Gait Speed and Symmetry, Prevent Falls, Reduce Fatigue	Rx: Ultraflex Custom Molded ADR KAFO with Anterior Bands 	Near to fully compressed	Only if posterior elastomer and KAFO trimlines do not control knee hyperextension	Little to no compression needed	Usually none needed	0° Lock out sufficient for standing and walking stability; 10°, 20°, 30° stance phase flexion adjustment for increased range allowance as needed
Flexion Gait Moment	Ankle: Near to full ROM Knee: Near to full Knee ROM	Weak hip extensors, quadriceps, and gastroc-soleus	First: full, mid, or forefoot contact Second: too much hip flexion, knee flexion, and ankle dorsiflexion in mid-stance Third: no heel rise	Improve First Rocker, Create Knee Extension Moment in Mid to Late Stance, Block Toe/Third Rocker, Improve Gait Speed and Symmetry, Reduce Fatigue	Rx: Ultraflex Custom Molded ADR AFO with Anterior Band 	Little to no compression needed	Only if required for swing clearance and initial contact with heel	Near to fully compressed	Only if anterior elastomer compression alone does not create sufficient knee extension moment in mid to late stance	N/A
Flexion Gait Moment	Ankle: Near to full ROM Knee: Near to full Knee ROM (must be able to get to within 10° full knee extension)	Weak hip extensors, quadriceps, and gastroc-soleus	First: full, mid, or forefoot contact Second: too much hip flexion, knee flexion, and ankle plantarflexion in mid-stance Third: no heel rise	Improve First Rocker, Create Knee Extension Moment in Mid to Late Stance, Improve Gait Speed and Symmetry, Prevent Falls, Reduce Fatigue	Rx: Ultraflex Custom Molded ADR KAFO with Posterior Bands 	Little to no compression needed	Only if required for swing clearance and initial contact with heel	Near to fully compressed	Only if anterior elastomer compression and KAFO trimlines do not create sufficient knee extension moment in mid to late stance	0° Lock out sufficient for standing and walking stability; 10°, 20°, 30° stance phase flexion adjustment for increased range allowance as needed

*This chart is provided as an example only; the final bracing solution will be determined by the prescribing physician and the physician's rehab team. Although there are many clinical presentations for extension and flexion gait moments, these guidelines address 1) Range 2) Strength and 3) Observational Gait (First, Second, and Third Rocker).

** Ultraflex Therapeutic/Stretching orthoses should be considered for patients demonstrating greater than 5° range of motion loss from normal at either the ankle or knee. Please refer to Ultraflex's General Guidelines for Therapeutic/Stretching Bracing Solutions.

Easily convert a KAFO to an AFO with a quick release feature***



- Allows for maximum treatment options in one orthosis
- Ideal for patients with changing physiology

***Available as single component or with custom fabricated orthosis

Compliance

Ultraflex UltraSafeStep™ orthoses can be worn throughout the day for ambulatory and non-ambulatory activities as tolerated but should be removed during sleep.

Patients may need to gradually work into wearing their orthoses and should follow the specific instructions given to them by their orthotists.

(Adjustments or modifications may be necessary to the orthosis. Patients should report any discomfort, irritation, or rubbing caused by the orthosis to their orthotist.)

Delivering Patient Inspired Solutions

For Support	Call 800-220-6670, Monday - Friday, 7:00am - 6:00pm (ET)
Clinical	brace selection/design, measurement, casting, fitting, wear schedule guidelines
Reimbursement	pricing, L Code, and prior authorization recommendations
Fabrication	fabrication tips or custom fabrication through Ultraflex; we offer a wide selection of custom interface designs and colors
Ultraflex's Patient Assistance Program	uninsured or patients with financial need

Ultraflex Exclusive Component Technology*

Component	Description	Features
	<p>Adjustable Dynamic Response (ADR) Ankle Joint</p> <p>Dually adjustable dynamic stance phase control for motion with stability</p>	<ul style="list-style-type: none"> Recommended for patients up to 250 lb. (medial and lateral joints together) Continuously adjustable: <ul style="list-style-type: none"> 0-40° Plantarflexion ROM 0-40° Dorsiflexion ROM Adjustable dynamic response muscle augmentation: <ul style="list-style-type: none"> Plantarflexion up to 240 in/lb. Dorsiflexion up to 360 in/lb.
	<p>Adjustable Dynamic Response (ADR) Knee Joint with Cable Release</p> <p>Adjustable dynamic stance phase flexion for stability without locking the knee</p>	<ul style="list-style-type: none"> Recommended for patients up to 250 lb. 0-30° ROM for both stance and swing Elastomer durometer: <ul style="list-style-type: none"> 85 D for patients 175 lb. or less 95 D for patients over 175 lb. Cable lengths for thermoplastic braces: <ul style="list-style-type: none"> Small: 9" & 11" Medium: 12" & 15" Long: 15" & 18" Extra Long: 18" & 21" For carbon composite cable length please call 800-220-6670

*Components come with a limited lifetime warranty.

ADR Component Adjustment Based on Patient Presentation

Setting the Channels - Ultraflex recommends adjusting the posterior and anterior elastomer channels to first obtain a smooth gait, after which the rigid stops may be adjusted if required.

Posterior Elastomer Channel

Compress to augment tibialis anterior at initial contact
(Resist foot slap/equinus and promote heel-ankle rockers in early stance)

Anterior Elastomer Channel

Compress to augment the gastroc-soleus from mid-stance to pre-swing
(Resist crouch gait, premature advancement of the tibia during stance, and rapid dorsiflexion/knee buckling; promote smooth second and third rockers in late stance)

Plantarflexion and Dorsiflexion Stop Channels

Create a rigid stop for patients as desired (Variable stop, 0-40° as needed; please see inside chart, General Guidelines for UltraSafeStep™, for stop usage by gait pattern type)

Note: Red Nylock patches on adjustment screws will prevent screws from backing out once adjusted.

ADR Component Maintenance

Regular maintenance is recommended for UltraSafeStep™ and UltraSafeGait™ components every 3 to 6 months based on wear. In addition to making any needed adjustments based on observational gait analysis, range, and strength, it is also recommended that you lubricate the elastomer channels on the ankle component and review the biomechanical performance of both the ankle and knee joint (UltraSafeStep™). For more information, please call 800-220-6670.

Our FDA Class I braces are available only through a physician's prescription and are fitted and billed by certified orthotists. Ultraflex braces and components are covered by most insurance providers.

Focuses more on the ability of the patient than the disability!

Call to set up an in-service training session: 800-220-6670
Education via WebEx: www.ultraflexsystems.com

Reference

1. T Bowman. Managing Gait Deviations with Adjustable Dynamic Response. *The Academy Today*. March 2008.