Reciprocating Gait Orthosis

Patient & Component Selection Guide

Fillauer®

Orthotic Management of the Paraplegic Person

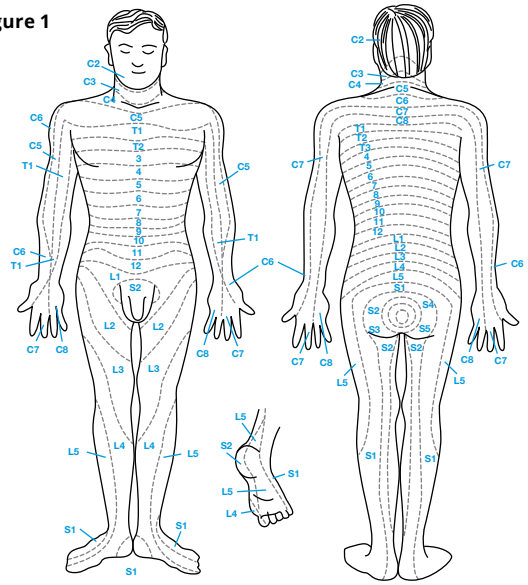
When initially developed, the Reciprocating Gait Orthosis (RGO) was designed to treat children suffering from spina bifida with myelomeningocele, (a structural defect in the spine at birth). Better prenatal nutrition across the globe has led to a decline in these types of birth defects.

More recently, increasing cases of spinal cord trauma are a result of motor vehicle, industrial and farming accidents and neurological diseases such as syringomelia (a disorder in which a cyst forms within the spinal cord), Fredriech's ataxia (an inherited disease that causes progressive damage to the nervous system), cerebral palsy and muscular dystrophy presents more often in persons that will benefit from the prescription and use of the RGO. The degree of disability of all of the aforementioned disorders varies with the level of defect.

Spinal Cord Injury

Until quite recently, most persons with injury to the spinal cord did not survive[1], or at best were relegated to a shortened lifespan with contractures, numerous infections and respiratory compromise. With improved pre-hospital care procedures of trauma patients and advances in medical care, the number of surviving cases has increased dramatically during the past two or three decades.

Figure 1



Injury to the spinal cord results in loss of sensation and voluntary use of the muscles. The loss of function varies roughly with the neurological level (see Dermatomes Figure 1) of the injury which is commonly designated by the vertebrae immediately adjacent to the level of injury, e.g. C4 – C5 and T1 – T2. However, the pattern of loss for each level is not always consistent. Both sides of the body are involved, but not necessarily symmetrically.

Spina Bifida

Spina bifida (which literally means "cleft spine,") is characterized by the incomplete development of the brain, spinal cord, and/or meninges (the protective covering around the brain and spinal cord) which result in defective closure of the bony structures surrounding the spinal cord during development. Research studies indicate that the major cause of spina bifida is caused by an insufficient intake of folic acid, a common B vitamin, in the mother's diet.

There are four types of spina bifida: occulta, closed neural tube defects, meningocele, and myelomeningocele.

Occulta

Occulta is the mildest and most common form in which one or more vertebrae are malformed. The name "occulta," which means "hidden," indicates that the malformation, or opening in the spine, is covered by a layer of skin. In the person with this type of disorder, there is oftentimes a visual patch of hair in the lumbar area of the spine. This form of spina bifida rarely causes disability or symptoms.

Closed Neural Tube

Closed neural tube defects is the second form of spina bifida. This form consists of a diverse group of spinal defects in which the spinal cord is marked by a malformation of fat, bone, or membranes. In some patients there are few or no symptoms; in others the malformation causes incomplete paralysis with urinary and bowel dysfunction.

Meningocele

Meningocele, the third form, the meninges protrude from the spinal opening, and the malformation may or may not be covered by a layer of skin. Some patients with meningocele may have few or no symptoms while others may experience symptoms similar to closed neural tube defects.

Myelomeningocele

Myelomeningocele, the fourth form, is the most severe. It occurs when the spinal cord is exposed through an opening in the spine, resulting in partial or complete paralysis of the parts of the body below the spinal opening. The paralysis may be so severe that the affected individual is unable to walk.

1 **Shock Trauma Center Baltimore, Maryland "The Golden Hour" Dr. R. Adams Cowley**

Associated with this anomaly are weak lower limbs, sensory loss, incontinence of the bowel and bladder and on occasion, hydrocephalus (an abnormal accumulation of cerebrospinal fluid (CSF) in the ventricles, or cavities, of the brain). The National Paraplegia Foundation[2] estimates there are 27,500 individuals with spina bifida in the United States.

Surgical procedures are used to correct hydrocephalus when present, and practical the incontinence problems can generally be handled by a combination of training, diet and intermittent catheterization.

The associated weakness of the muscles in the lower limbs and trunk oftentimes makes ambulation impossible without orthotic intervention and/or other aids. The problem is compounded by the tendency for contractures to develop because of the imbalance between antagonists and the associated lack of sensation.

Muscular Dystrophy

Muscular dystrophy, is an inherited disease that results in progressive weakness. One form, pseudohypertrophic, occurs in young males and is usually detected about the time the child begins to walk. Loss of muscle strength is slowly progressive and the patient is generally confined to a wheelchair by adolescence.

The second major type, fascioscapulohumeral, affects both sexes and usually begins during adolescence. The rate of progression in this type is generally slow.

There are a number of irreversible that have the same symptoms as muscular dystrophy; they are known as muscular atrophies and muscular myopathies. The National Paraplegia Foundation estimates that there are approximately 200,000 persons diagnosed with muscular dystrophy in the United States alone.

There are many styles of orthoses that can be useful in helping dystrophy patients to prolong their ability to ambulate and postponing their complete dependence in a wheelchair.

Recent advances in the utilization of FES (functional electrical stimulation) can help with ambulation. The use of low levels of electrical current to stimulate physical or bodily functions help improve the nervous system impairment to help in ambulation.[3]

Cerebral Palsy

Cerebral palsy (CP) is an umbrella term encompassing a group of non-progressive, non-contagious motor conditions that cause physical disability in human development, chiefly in the various areas of body movement.

The RGO is helpful in its prescription for this disorder because it can improve gait anomalies through the design of a rigid pelvic band coupled with articulating hip joints. The RGO controls scissoring (a common gait anomaly where the adductors overpower the abductors. Other than for suspension, there is no supportive need for the lumbar style jacket (LSO) when treating the CP individual.

2 **The National Paraplegia Foundation Fort Worth, Texas ninds.nih.gov/... /hereditary_spastic_paraplegia.htm**

3 **SCI therapies http://www.sci-therapies.info**

The Orthosis

Principles of Operation

The RGO allows stable, upright balance at minimal metabolic energy cost. As the patient starts to walk, several physical functions are taken in sequence.

1. The patient's weight is shifted over one leg (normally the stance leg that will execute the push-off function). This is accomplished by elbow extension with the contralateral arm, tilting the trunk toward the leg. This results in a slight elevation of one leg and allows it to clear the floor as the swing phase is initiated.
2. The patient exaggerates lordosis by shoulder retraction and back extension. Applying force against the posterior thoracic strap of the RGO applies force on the thoracic uprights creating a moment about the hip joint of the stance leg and forces it to undergo hip extension.
3. The dual-cable mechanism links the two hip joints and transmits part of the torque created about the hip of the extremity (leg) in stance phase of gait, to the contralateral hip in a reciprocal manner, initiating hip flexion. This results in the execution of the swing phase simultaneous with the contralateral push-off.

These sequential steps require some coordination and practice, which is easily learned by the patient, given appropriate guidance and instruction from a well-trained Physical Therapist and several hours of supervised practice.

Patient Selection

When determining whether a particular patient is a candidate for the Reciprocating Gait Orthosis, several things must be clearly considered prior to the physician writing the order. They are:

- Thin
- Neurosegmental level T12 – L2
- Good head and neck control
- No lower extremity contracture
- Minimal lower extremity deformities
- Good upper extremity strength
- Motivated patient and family

Based on the Neurosegmental Level

- Thoracic Level—RGO with walker/wheelchair
- L1, L2 Level—RGO with walker or crutches
- L3, L4 Level—AFO
- L5 Level—AFO
- Sacral level no orthosis

Indications

- T4 – L4 paraplegia (other levels are also possible to treat successfully)
- Feet should be plantar-grade (minor deviations can be corrected with modifications to the shoes such as wedges)
- Knees should be free from significant contractures of < 10 degrees
- Hips should be free of contracture and flexible, not rigid or spastic

Children with unilateral hip dislocations and limb length inequalities have been satisfactorily fit with RGOs. In instances such as this, both hip joints of the orthoses are aligned with the intact hip joint and a shoe elevation is applied.

The use of walking aids (crutches or walker) is necessary for patients utilizing the Reciprocating Gait Orthosis.

Reciprocal gait is accomplished at low to moderate speeds and at low energy expenditure. A swing or swing-through gait for faster velocities is still possible if the above criteria are met, the patient can expect to maintain erect posture. With daily usage of the RGO advantages include: prevention of contractures, increases in respiratory reserves, increased bladder drainage and fewer urinary tract infections.[4]

Adults fit with the Reciprocating Gait Orthosis, can expect to utilize the wheelchair for most of their ADL (activities of daily living). Interviews with many of the adult wearers tell of feeling increased independence, increased social interaction and a sense of social acceptance when standing upright in the RGO device.

4 **The expected rate of hospitalization for urinary tract infections of non-ambulatory SCI persons is 42%. An annual publication of the Medical Rehabilitation Research and Training Center in Secondary Complications in Spinal Cord Injury, U.A.B.-Spain Rehabilitation Center: Michael J DeVivo, DrPH September 1998**

Trauma

The paraplegic patient, as a result of a traumatic experience, is an excellent candidate for the Reciprocating Gait Orthosis. Persons who have sustained skeletal fractures resulting in paraplegia from T4 – L3 were normally in good health and ambulatory prior to the incident / accident. Their upper extremity, respiratory reserves and cognitive skills make them an excellent candidate to use this device with exceptional outcomes. Often they are fit with the device while the skeletal fractures are still healing.

Many of the paraplegic patients that we see as a result of trauma will have unstable spinal segments that either have or will be scheduled for a surgical operative procedure. These procedures are done to stabilize the segments that have been damaged in the accident. These procedures can be categorized in two types: non-invasive and invasive.

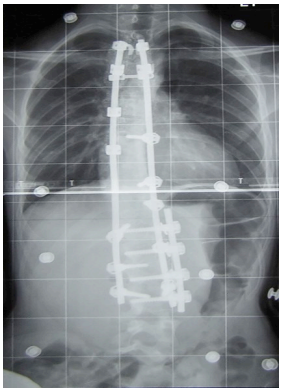


Figure 2: Pediatric screw fixation instrumentation

Some of the most common invasive instrumentation procedures for spinal fixation are the use of wire cages, rods, screws and bony fusions.[5] These persons oftentimes still have sterile dressings over the incision site (Figure 2 and Figure 3). In many cases, the patient referral for the RGO may be post-operative spinal fusion or vertebral body decompression. These persons often have sterile dressings over the incision site.

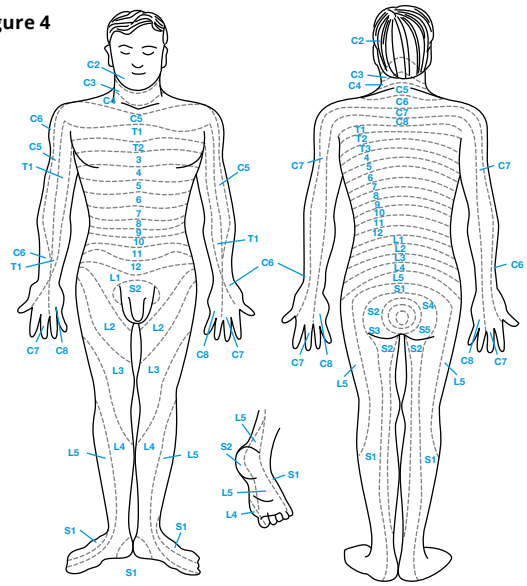
Figure 3: Harrington Rod

Noninvasive procedures often involve placing the patient under general anesthesia and exerting a distractive force on the spine through skeletal traction using weights. The force is applied to the lower extremities either by placing the patient in specialized traction boots where a pulley or weights are attached and a predetermined force is applied and the compromised vertebrae. This procedure is done to realign the vertebrae reducing the pressure on the spinal cord and then a spinal orthosis is applied to retain the positioning of the vertebral body.

Neurologic lesion levels

The neurological levels of the body are important to RGO selection because the level of involvement directly relates to function (Figure 4).

Figure 4



Thoracic

- No motion in lower extremities
- Poor sitting without support due to weak abdominal muscles

Lumbar

- L1—hip flexors present (psoas and sartorius)
- L2—Strong hip flexors moderate hip adductors (pectineus, gracilis, adductor longus, adductor brevis)
- L3—moderate quadriceps strength with knee extension
- L4—Strong knee extension (quadriceps), plus foot inversion (anterior tibialis)
- L5—Dorsiflexion of the foot (extensor digitorum longus, extensor hallucis longus), hip abduction (gluteus medius)

Sacral

- S1 - Active plantar flexion foot (gastroc-soleus, flexor hallucis longus, flexor digitorum longus, hip extensors, gluteus maximus)

5 **Spinal fusion for unstable fractures. Peter F. Ullrich, Jr., MD http://www.spine-health.com/treatment/spinal-fusion/lumbar-spinal-fusion-surgery**

Orthotic Design

Contraindications

- Severe fixed hip and knee contractures that prevent the establishment of normal alignment
- Spasticity or other involuntary muscle activity that prevents free and coordinated mobility
- Marked obesity
- The higher the ratio of weight to height, the increased energy utilization for ADL and ambulation. Additionally, with marked obesity, the increased size of the pelvic componentry sidebars and related components (straps, pads etc.) comes increased weight and bulk, thus making it more difficult to accomplish daily activities such as transfer and ambulation.
- Poor upper extremity strength
- The reasoning for the need for increased upper extremity strength is not only for transfers and ADL, but for donning, doffing of the orthosis, mobility using crutches, or a walker for these activities.
- Contractures (non-reducible) greater than 30° in the hips, knees or ankles.

Basic Rule of Contractures

- Any contracture or deformity of the pelvis and lower extremities which prevents orthotic use must be corrected
- If not corrected you must accommodate
- Always accommodate
- Increase sidebar size to support increased forces
- Hip flexion contractures will limit step length
- Wearing RGOs will decrease contractures

Please keep in mind, that once the decision is made to accommodate the contracted joint, that the affected joint angle is essentially “non-correctable” without considerable amount of therapy or at worst, surgical intervention.

In general, the Reciprocating Gait Orthosis has successfully been prescribed and used by children with spina bifida who would have otherwise been able to walk but yet possesses sufficient upper extremity strength to use crutches and maintain their balance. Obviously, if the child has sufficient hip strength to maintain an erect posture and advance the lower limbs one leg at a time, some lesser form of orthotic management should be considered.

The RGO has also been successful for children and adults with “non-progressive spinal muscular atrophy” utilizing the same criteria for patients with spina bifida. Due to the progressive nature of Duchenne’s muscular dystrophy, the use of the RGO is not encouraged.

RGO Component Selection Criteria

Pelvic Section

It is important to choose the correct componentry for the RGO and orthotic componentry. Remember to only control what needs controlling.

- The better balance your patient has the more flexible the system can be
- Higher body weights require more rigid systems

There are a number of Pelvic Section choices available through Fillauer.

Hooped Cable Design

While the least costly of all options, the hooped cable is the simplest and easy to use. When concerned if the patient is a candidate for the device, the Hooped Cable is the design of choice. Its simple design incorporates all of the desired benefits of the Reciprocating Gait Orthosis at the lowest pelvic section. Applicability: child through adult

Horizontal Cable Pelvic Section

This design offers the most cosmetic option for a pelvic section in a low maintenance style. It can be utilized with a rigid pelvic band of standard or butterfly style, riveted or welded sidebar attachment. It is oftentimes combined with a molded plastic LSO (lumbo-sacral style) or TLSO (thoraco-lumbar height jacket) depending on the level of the lesion or control desired. Applicability: child through adult

Isocentric Rocker Bar Pelvic Section

This is the heaviest duty pelvic section offered by Fillauer. It offers a rocker bar reciprocator and ¼ in. aluminum pelvic band that is welded to the sidebars for the strongest and most substantial lower extremity control for single or double bar KAFO designs. Applicability: child through adult

RGO Hip Joint Assemblies

The hip joint is the most important part of the Reciprocating Gait Orthosis. The joint keeps the lower extremities in the correct alignment to achieve reciprocal gait. In some instances, the style allows abduction of the lower extremities to facilitate a wider base of support when sitting or for the patient to self-catheterize. The preselect design allows the wearer to select the unlock feature to sit, then when standing to permit the joint to lock and begin reciprocal gait. Examples of the various designs are shown within the next section.

Note: All of the Reciprocating Gait Orthosis pelvic sections are compatible with any style hip joint components. The Center for Orthotics Design lower hip joint bars are interchangeable with the medium or large Fillauer LLC hip joints.

Latch Knob for Small Hooped Cable RGO

- For small Hooped Cable RGOs only

Part Number	RGO Size	Length	Dimensions		Side
028060	Small	Standard	3/16 × 5/8 × 5 in.	(0.5 × 1.6 × 12.7 cm)	Right
028062	Small	Standard	3/16 × 5/8 × 5 in.	(0.5 × 1.6 × 12.7 cm)	Left
028064	Small	XLong	3/16 × 5/8 × 9 in.	(0.5 × 1.6 × 22.9 cm)	Right
028066	Small	XLong	3/16 × 5/8 × 9 in.	(0.5 × 1.6 × 22.9 cm)	Left

Push Button for Hooped Cable RGO

- For medium and large Hooped Cable RGOs
- Push button flexion lock release
- Two step coupling plate to assist standing

Part Number	RGO Size	Length	Dimensions		Side
028080	Medium	Standard	1/4 × 3/4 × 6 in.	(0.6 × 1.9 × 15.2 cm)	Right
028082	Medium	Standard	1/4 × 3/4 × 6 in.	(0.6 × 1.9 × 15.2 cm)	Left
028084	Medium	XLong	1/4 × 3/4 × 10 in.	(0.6 × 1.9 × 25.4 cm)	Right
028086	Medium	XLong	1/4 × 3/4 × 10 in.	(0.6 × 1.9 × 25.4 cm)	Left
028090	Large	Standard	5/16 × 7/8 × 8 in.	(0.8 × 2.2 × 20.3 cm)	Right
028092	Large	Standard	5/16 × 7/8 × 8 in.	(0.8 × 2.2 × 20.3 cm)	Left
028094	Large	XLong	5/16 × 7/8 × 12 in.	(0.8 × 2.2 × 30.5 cm)	Right
028096	Large	XLong	5/16 × 7/8 × 12 in.	(0.8 × 2.2 × 30.5 cm)	Left

RGO II System for Hooped Cable RGO

- Available for medium and large RGO sizes only
- Abduction joint with ring lock release
- Push button flexion lock release
- Two step coupling plate to assist standing
- Automatic relocking with internal spring
- Long, heavy duty lower hip joint bar, compatible with existing upper bars

Part Number	RGO Size	Length	Dimensions		Side
026752	Medium	Standard	7/16 × 3/4 × 7 in.	(1.1 × 1.9 × 17.8 cm)	Right
026750	Medium	Standard	7/16 × 3/4 × 7 in.	(1.1 × 1.9 × 17.8 cm)	Left
026754	Large	Standard	1/2 × 3/4 × 10 in.	(1.3 × 1.9 × 25.4 cm)	Right
026756	Large	Standard	1/2 × 3/4 × 10 in.	(1.3 × 1.9 × 25.4 cm)	Left

Latch Knob for Small Horizontal Cable RGOs

- For small Horizontal Cable RGOs only
- Extra long lower bar assembly is by special order only

Part Number	RGO Size	Length	Dimensions		Side
028702	Small	Standard	3/16 × 5/8 × 5 in.	(0.5 × 1.6 × 12.7 cm)	Right
028706	Small	Standard	3/16 × 5/8 × 5 in.	(0.5 × 1.6 × 12.7 cm)	Left
028702XL	Small	XLong	3/16 × 5/8 × 9 in.	(0.5 × 1.6 × 22.9 cm)	Right
028706XL	Small	XLong	3/16 × 5/8 × 9 in.	(0.5 × 1.6 × 22.9 cm)	Left

Push Button for Horizontal Cable RGOs

- For medium and large Horizontal Cable RGOs
- Push button flexion lock release
- Two step coupling plate to assist standing
- Extra long lower bar assembly is by special order only

Part Number	RGO Size	Length	Dimensions		Side
028708	Medium	Standard	1/4 × 3/4 × 6 in.	(0.6 × 1.9 × 15.2 cm)	Right
028710	Medium	Standard	1/4 × 3/4 × 6 in.	(0.6 × 1.9 × 15.2 cm)	Left
028708XL	Medium	XLong	1/4 × 3/4 × 10 in.	(0.6 × 1.9 × 25.4 cm)	Right
028710XL	Medium	XLong	1/4 × 3/4 × 10 in.	(0.6 × 1.9 × 25.4 cm)	Left
028712	Large	Standard	5/16 × 7/8 × 8 in.	(0.8 × 2.2 × 20.3 cm)	Right
028714	Large	Standard	5/16 × 7/8 × 8 in.	(0.8 × 2.2 × 20.3 cm)	Left
028712XL	Large	XLong	5/16 × 7/8 × 12 in.	(0.8 × 2.2 × 30.5 cm)	Right
028714XL	Large	XLong	5/16 × 7/8 × 12 in.	(0.8 × 2.2 × 30.5 cm)	Left

RGO II System for Horizontal Cable RGOs

- Available for medium and large Horizontal Cable RGOs
- Abduction joint with ring lock release
- Push button flexion lock release
- Two step coupling plate to assist standing
- Automatic relocking with internal spring
- Long, heavy duty lower hip joint bar, compatible with existing upper bars

Part Number	RGO Size	Length	Dimensions		Side
026152	Medium	Standard	7/16 × 3/4 × 7 in.	(1.1 × 1.9 × 17.8 cm)	Right
026150	Medium	Standard	7/16 × 3/4 × 7 in.	(1.1 × 1.9 × 17.8 cm)	Left
026190	Large	Standard	1/2 × 3/4 × 10 in.	(1.3 × 1.9 × 25.4 cm)	Right
026192	Large	Standard	1/2 × 3/4 × 10 in.	(1.3 × 1.9 × 25.4 cm)	Left

RGO Knee Joints

Drop Lock Aluminum Knee Joint Assembly

Part Number	Size	Bar Dimensions	Side
023800	Small	3⁄16 × ½ in. (0.5 × 1.3 cm)	Pair
023801	Medium	¼ × 5⁄8 in. (0.6 × 1.6 cm)	Pair
023802	Large	¼ × ¾ in. (0.6 × 1.9 cm)	Pair

Drop Lock Low Profile Knee Joint Assemblies

Part Number	Size	Bar Dimensions	Side
023130	Small	⅛ × ½ in. (0.3 × 1.3 cm)	Straight Pair
023134	Medium	3⁄16 × 5⁄8 in. (0.6 × 1.6 cm)	Straight Pair
023138	Medium	3⁄16 × 5⁄8 in. (0.6 × 1.6 cm)	Right, Medial Contoured
023139	Medium	3⁄16 × 5⁄8 in. (0.6 × 1.6 cm)	Left, Medial Contoured
023136	Medium	3⁄16 × 5⁄8 in. (0.6 × 1.6 cm)	Contoured Pair
023140	Large	3⁄16 × ¾ in. (0.5 × 1.9 cm)	Straight Pair
023144	Large	3⁄16 × ¾ in. (0.5 × 1.9 cm)	Right, Medial Contoured
023145	Large	3⁄16 × ¾ in. (0.5 × 1.9 cm)	Left, Medial Contoured
023142	Large	3⁄16 × ¾ in. (0.5 × 1.9 cm)	Contoured Pair

Cam Lock Knee Joint Assembly

Part Number	Size	Bar Dimensions	Side	Bar Material
023520SA	Small	⅛ × ½ in. (0.3 × 1.3 cm)	Straight Pair	Aluminum
023520SAR	Small	⅛ × ½ in. (0.3 × 1.3 cm)	Right, Medial Contoured	Aluminum
023520SAL	Small	⅛ × ½ in. (0.3 × 1.3 cm)	Left, Medial Contoured	Aluminum
023520SAB	Small	⅛ × ½ in. (0.3 × 1.3 cm)	Contoured Pair	Aluminum
023520SS	Small	⅛ × ½ in. (0.3 × 1.3 cm)	Straight Pair	Stainless Steel
023520SSR	Small	⅛ × ½ in. (0.3 × 1.3 cm)	Right, Medial Contoured	Stainless Steel
023520SSL	Small	⅛ × ½ in. (0.3 × 1.3 cm)	Left, Medial Contoured	Stainless Steel
023520SSB	Small	⅛ × ½ in. (0.3 × 1.3 cm)	Contoured Pair	Stainless Steel
023560MA	Medium	3⁄16 × 5⁄8 in. (0.6 × 1.6 cm)	Straight Pair	Aluminum
023560MAR	Medium	3⁄16 × 5⁄8 in. (0.6 × 1.6 cm)	Right, Medial Contoured	Aluminum
023560MAL	Medium	3⁄16 × 5⁄8 in. (0.6 × 1.6 cm)	Left, Medial Contoured	Aluminum
023560MAB	Medium	3⁄16 × 5⁄8 in. (0.6 × 1.6 cm)	Contoured Pair	Aluminum
023560MS	Medium	3⁄16 × 5⁄8 in. (0.6 × 1.6 cm)	Straight Pair	Stainless Steel
023560MSR	Medium	3⁄16 × 5⁄8 in. (0.6 × 1.6 cm)	Right, Medial Contoured	Stainless Steel
023560MSL	Medium	3⁄16 × 5⁄8 in. (0.6 × 1.6 cm)	Left, Medial Contoured	Stainless Steel
023560MSB	Medium	3⁄16 × 5⁄8 in. (0.6 × 1.6 cm)	Contoured Pair	Stainless Steel
023560LA	Large	3⁄16 × ¾ in. (0.5 × 1.9 cm)	Straight Pair	Aluminum
023560LAR	Large	3⁄16 × ¾ in. (0.5 × 1.9 cm)	Right, Medial Contoured	Aluminum
023560LAL	Large	3⁄16 × ¾ in. (0.5 × 1.9 cm)	Left, Medial Contoured	Aluminum
023560LAB	Large	3⁄16 × ¾ in. (0.5 × 1.9 cm)	Contoured Pair	Aluminum
023560LS	Large	3⁄16 × ¾ in. (0.5 × 1.9 cm)	Straight Pair	Stainless Steel
023560LSR	Large	3⁄16 × ¾ in. (0.5 × 1.9 cm)	Right, Medial Contoured	Stainless Steel
023560LSL	Large	3⁄16 × ¾ in. (0.5 × 1.9 cm)	Left, Medial Contoured	Stainless Steel
023560LSB	Large	3⁄16 × ¾ in. (0.5 × 1.9 cm)	Contoured Pair	Stainless Steel

Cable Release and Lever Lift

Part Number	Description
023463	Cable Release Kit
023801	Spring Loaded Lever Lift

Upright Kits

Part Number	Bar Dimensions		Bar Material
025240	¼ × ¾ in.	(0.6 × 1.9 cm)	Aluminum
025242	3⁄16 × ¾ in.	(0.5 × 1.9 cm)	Aluminum
025244	3⁄16 × ¾ in.	(0.5 × 1.9 cm)	Stainless Steel

AFO Options

The AFO is essentially the “foundation for a great fit!” This oftentimes overlooked component of the RGO offers the balance, and functional use to the wearer of the Reciprocating Gait Orthosis. The 2 options of AFOs available today are internal and external designs.

External Design

There are a number of positive reasoning for the recommendation and use of external AFOs:

- Allows the wearer the option to don and doff the orthosis easily while in the wheelchair
- The design offers a wider base of support while standing and is easily “fine tuned” for balance in all planes
- The anterior shell provides flexion control (floor reaction) of the ankle foot complex as well as the knee without impingement on the soft tissues in the sitting position
- Easily used with the “single sidebar” design of KAFOs

The drawbacks for this style of AFO are primarily limited to the cosmesis of the device.

Internal Design

The positive reasonings for the internal AFO design are:

- A more cosmetic outcome to the wearer
- Available as a “floor reaction” design to keep the knee extended
- Must be fashioned in the “full footplate” trim lines

The drawbacks of the internal design are they are difficult to change the angulations to produce the correct alignment.

Selection Criteria

Child: Up to 85 lbs. (39 kg)

Unless specifically ordered, a patient up to 85 lbs., the RGO will be fabricated using the following criteria:

- Horizontal cable RGO pelvic section with plastic band
- Plastic jacket lined with chest strap
- Pre selected hip joints small
- Thrust bearing hip section
- Plastic double upright KAFO
- Fillauer cam lock knee joints
- Solid ankle internal AFO with heel height of ¼ in.
- Growth extensions
- Set up for temporary fitting

Adolescent: 85 – 175 lbs. (39 – 79 kg)

Unless specifically ordered, a patient up to 175 lbs., the RGO will be fabricated using the following criteria:

- Horizontal cable RGO pelvic section or Isocentric RGO

Adult: 175 lbs. (9 kg) and Over

Unless specifically ordered, a patient up to 175 lbs., the RGO will be fabricated using the following criteria:

- Isocentric RGO pelvic section
- Regular metal pelvic band
- ABS plastic jacket lined, permanently attached
- Quick disconnect drop lock HD hip joints pre-selected
- Single upright KAFO
- Drop lock knee joints bar size ¼ × 1 in.
- External AFO
- Set up for temporary fitting

RGO Component Selection Decision FAQ

Fillauer offers a wide variety of Pelvic Sections, which one is best for my patient?

While Fillauer offers you the largest variety of RGO pelvic section designs for your patient, the wide variety can be confusing. Here are some highlights of the various styles to help you in making an informed decision:

The Horizontal Cable design is the least obtrusive RGO pelvic section we offer. This design will give your patient smooth operation with the cables incorporated within the pelvic posterior jacket. All componentry including the pelvic band may be incorporated into a molded spinal jacket at your request. It offers a lightweight cosmetically appealing design that is easily worn beneath most clothing (children through adult).

The Isocentric RGO is the most rigid pelvic section we offer. Its welded HD aluminum pelvic band combines the smoothest operation with the most lateral stability. It also allows for easy adjustment of hip flexion contractures or other hip or stride length disorders using our different turnbuckle options. This version is perfect for heavier patient considerations. The Isocentric RGO can be used with single or double sidebar designs (children through adult).

How high should I make the lateral sidebars?

The height (length) of the thoracic section is determined from the level of spinal cord involvement and also the level of stability of the patient's trunk musculature. One simple test to determine the height of the sidebars is:

With the patient sitting on the mat table (or equivalent), place your hand in the axillary region to act as a brace and exert lateral pressure to the opposite shoulder. The patient should be able to resist the pressure and remain posturally stable.

Lower the hand placement in the axilla region and exert pressure at the same height as before. If the patient continues to resist the urge to fall in the direction of the pressure exertion, continue to move your hand inferior until the patients postural stability begins to become compromised. This is the level of lateral stability and you have now determined the height for the lateral sidebars (increase this newly found height by 1 – 2 in.) for patient stability control.

When should I incorporate a spinal jacket with my patients RGO device?

The decision to include a spinal jacket for your patient, is determined not only by the level of involvement, but also the ability of the patients abdominal and para-spinal musculature. If in doubt, always include a spinal jacket for stability. When indicated, as the patients rehabilitation progresses, the anterior portion may be replaced with a simple anterior pad with a Velcro closure to the strap will suffice.

What type of hip joints are the best for my patient?

The utilization of the hip control joint is an important one. Fillauer offers a wide variety of Hip Control configurations for your patients.

Ring Lock Abduction: this thrust bearing style is oftentimes recommended for the young patient to facilitate sitting and by allowing abduction, offers increased stability and easier "self catheterization." (all patient types; however, children and those needing to self-catheterize benefit most from this design).

RGO II Preselect Ring Lock Abduction Combo: this thrust bearing style joint incorporates all the benefits from all Fillauer RGO hip joints (available in medium and large size sidebars).

Preselect: this design allows the patient to simply select with a thumb lever select, latch knob, or push button design that allows the patient to unlock the joint and sit or, prior to standing, allow the joint to lock independently when standing. The operation is simple (children through adult).

Preselect Quick Disconnect: the quick connect/disconnect feature allows a sitting, adult patient to function more optimally. This thrust bearing design joint allows the adult patient the possibility to don the device in sections and join the lower extremity section with the pelvis section while seated (adult only).

SCI Patient Initial Intake

Patient Information

Patient Name:		
Patient Address:		
Date of Birth:	Age:	Sex:
Level of Injury:	Mechanism of Injury:	
DOA:		

Domicile Information

Home Style:	☐ Ranch	☐ Split Level	☐ Multi-Level ☐ Custom
Entrance:	☐ Stairs ☐ Front ☐ Rear	☐ Railings ☐ Front ☐ Rear	☐ Ramp ☐ Front ☐ Rear
Interior:	☐ Stairs ☐ Front ☐ Rear	☐ Lift ☐ Front ☐ Rear	
Floors:	☐ Carpet	☐ Tile	☐ Wood
Wheelchair Accessible:	☐ Yes ☐ No		

Initial Evaluation

Flexibility - Trunk:	☐ Normal ☐ Abnormal Comments:
Upper Extremity:	☐ Normal ☐ Abnormal Comments:
Lower Extremity:	☐ Normal ☐ Abnormal Comments:
Anomalies Noted:	☐ Contracture ☐ Limb Length ☐ Other Comments:

Initial Exam—2 Hours

Day 1

- Initial admission (in or outpatient)
- Determine the level of involvement
- Muscle strength testing to develop baseline at initial evaluation (use attached chart)
- ROM testing of all extremities to determine if contractures are present;
- If NO contracture present concentrate on muscle strengthening
- If YES to contractures, determine degree and develop stretching program to reduce to normal ROM.

Treatment Plan

Week 1

Trunk (Postural) Musculature—Goal: Strengthening exercises for balance and control

Core Strengthening exercise program

- Negative sit-ups
- Rising to sit from hyperflexion
- Trunk extension
- Trunk rotation
- Bench press
- Pulley system
- Free weights
- Contracture management and prevention

Week 2

Upper Extremity Musculature—Goal: Strengthening exercises for ADL transfer, crutch, and walker ambulation.

- Wrist exercises
- Crutch push-ups
- Biceps strengthening
- Triceps strengthening
- Push-up blocks
- Quadruped
- Contracture management and prevention

Week 3

Lower Extremity Musculature—Goal: Contracture management, prevention and bone strengthening

- ROM modalities
- Stretching
- Quadraped
- Diagonal weight shift

ADL—Goal: Self Transfers

- Cardio-pulmonary endurance
- Bed to chair
- Chair to commode
- Floor to chair
- Strengthening exercises; all muscle groups

Diagonal Weight Shift	**Shift**
Trunk and Hip Extension	**Tuck**
Push Down	**Kick Through**

RGO Initial Fitting Evaluation

Week 4

Pelvic Section

- ☐ Pelvic section fits the flesh firmly in the ML plane
- ☐ Trim lines allow for full ROM
- ☐ Mechanical hip joints are at the anatomical hip joint level
- ☐ Sidebars allow adequate clearance while seated while anatomically contoured
- ☐ Sidebars follow the midline in the sagittal plane

Extremity Section

- ☐ Do the sidebars allow adequate clearance while seated while anatomically contoured?
- ☐ Do the sidebars follow the midline in the sagittal plane?
- ☐ Are the mechanical knee joints are at the anatomical knee joint level?
- ☐ Are the mechanical ankle joints are at the anatomical ankle joint level?
- ☐ Do the thigh and calf sections fit the flesh firmly in the ML plane?
- ☐ Do the thigh, calf and footplate sections allow adequate clearance and are free from pressure areas?

RGO Standing Initial Evaluation

- ☐ Is the patient able to fully extend the anatomical hip joint?
- ☐ Is the patient able to fully extend the anatomical knee joint?
- ☐ Are both the superior and Inferior edge of the pelvic section contoured to allow for pressure free contact?
- ☐ Are the KAFO sections contoured to allow pressure free contact?
- ☐ Is the patient able to stand “hands free” in the device?

RGO Ambulation Initial Evaluation

- ☐ Is the patient able to lateral weight shift while wearing the device in the parallel bars?
- ☐ Is the patient able to tuck, push-down and kick initiating ambulation?
- ☐ Does the device allow for full anatomical joint extension during ambulation?
- ☐ Do the mechanical hip joints allow for natural movement with the line of progression?
- ☐ Is the patient able to lock and unlock mechanical joint control devices?

Reinforcement of the above modalities will continue during the fitting treatment plan. The SCI patient needs to understand that all of the hard work during the past 3 – 4 weeks is now coming to fruition.

The Ability to Stand Independently

Confidence Building Using the RGO

Work in parallel bars to build confidence in the device through interjecting the following scenarios:

- Balance recovery
- Pitch and toss (ball toss)
- Standing push-ups
- Balance challenging
- Ambulation outside the bars using one crutch
- Ambulation over long distances with crutches
- Distance ambulated over a given distance within a certain time.
- Heart rate before and after timed exercise

Peer Interaction is Crucial

Use “peer interaction” when introducing new patients to the RGO (this is a strong tool when working with all types of patients, especially involved persons). By having an active wearer / user of the RGO “sharing” the gym or appointment time with a new user will show the possibilities of the RGO device. This type of “treatment sharing” creates a bond between the new and old user. They can work as a mentor or “big brother” to the new user. It is a proven method of motivation and support.

- Set up interactive events for groups of RGO users of all levels to promote camaraderie and support between groups of users. For example, walks, bowling, “races” both indoors and out, etc. What other types of events could be beneficial for the use and treatment of the RGO wearers?
- Continue to monitor vital signs e.g. weight, BP, heart rate throughout these outpatient events. Document benefits of use in all areas of ADL and social utilization of the RGO device to develop your own outcomes information for future authorization for new users.
- The benefits of papers and articles to document RGO wearers and use of the device

Clinical Evaluation for Candidacy

Patient Information

Last Name:	First Name:	
DOB:	Phone:	Email:
Gender: ☐ Male ☐ Female	Height:	Weight:
Extremity Involved: ☐ Left ☐ Right ☐ Bilateral	Current LE Orthosis for: ☐ Left ☐ Right ☐ Bilateral ☐ None	
Primary Diagnosis:	Type of Orthosis:	
Physician:	Date of Last Visit to Physician:	
Date of Onset:	RX Details:	
Date of Evaluation:		
The Purpose of this clinical evaluation is for: ☐ Existing orthotic user—functional assessment and determination of candidacy ☐ New orthotic referral—functional assessment and determination of candidacy		

Practitioner Information

Last Name:	First Name:	
Phone:	Fax:	Email:
☐ CO ☐ PT ☐ OT ☐ Pr ☐ Other:		
City:	State:	Zip:

Functional Considerations

Patient's Living Status:	☐ Alone or without assistance ☐ Long-term or assisted care facility ☐ Other / additional information:		☐ Home with Assistance	
Living Environment:	☐ Level Surfaces ☐ Uneven Surfaces ☐ Other Considerations:	☐ Linoleum ☐ Tile ☐ Carpet	☐ Stairs ☐ Ramps	Handrails available? ☐ Yes ☐ No Handrails available? ☐ Yes ☐ No
Barriers that Limit Independent or Community Walking:	☐ Fear of falling ☐ Reduced stamina / endurance ☐ Increased effort / energy costs ☐ Pain ☐ Unknown terrain ☐ Poor balance		☐ Weakness ☐ Poor fitting orthosis ☐ Orthosis does not meet current needs ☐ Other:	
Physical Therapy:	☐ None ☐ Ongoing ☐ Needed ☐ Patient would like a referral			
Daily Sitting / Standing Activities	Time spent seated at home: % Time spent standing / walking at home: %			
Daily Sitting / Standing Requirements for Vocation	☐ N/A ☐ Student as Vocation		Time spent seated at home: % Time spent standing / walking at home: %	

Walking Assessment

<table>
<tr><td colspan="5">Current Level of Ambulation:</td></tr>
<tr><td>Without Orthosis</td><td>With Current Orthosis
☐ N/A</td><td>Classification</td><td colspan="2">Description</td></tr>
<tr><td>☐ 0</td><td>☐ 0</td><td>Non-ambulator</td><td colspan="2">Not able to perform.</td></tr>
<tr><td>☐ 1</td><td>☐ 1</td><td>Physiologic ambulatory</td><td colspan="2">Endurance, strength, or level of assistance required makes the ambulation not functional. May require assistance to stand. (Walks for exercise only.)</td></tr>
<tr><td>☐ 2</td><td>☐ 2</td><td>Limited household ambulatory</td><td colspan="2">Walks in the home but limited by endurance, strength or safety. (Walks rare in the home / never in the community.)</td></tr>
<tr><td>☐ 3</td><td>☐ 3</td><td>Independent household ambulatory</td><td colspan="2">Walks continuously for distances that are considered reasonable for inside the home. May require assistance with stairs inside and curbs, ramps outside the home. A wheelchair may be used outdoors. (Walks occasionally in home, rarely in community.)</td></tr>
<tr><td>☐ 4</td><td>☐ 4</td><td>Limited community ambulatory</td><td colspan="2">Walks outside the home and can manage doors, low curbs, and ramps. A wheelchair may be used for long distances. (Walks regularly in the home / occasionally in the community.</td></tr>
<tr><td>☐ 5</td><td>☐ 5</td><td>Independent community ambulator</td><td colspan="2">Walks for distances of approximately 400 meters (1/4 mile) at a speed at least 50% of normal. Can manage all aspects of walking safely, including curbs, stairs, and doors (walks regularly in the community; rarely / never uses wheelchair).</td></tr>
<tr><td colspan="2" rowspan="3">External Walking Aids Used:</td><td colspan="2">☐ None</td><td>☐ Walker: ☐ Std ☐ 2-wheel ☐ 4-wheel</td></tr>
<tr><td colspan="2">☐ Cane: ☐ Single point ☐ 4-point</td><td>☐ Wheelchair</td></tr>
<tr><td colspan="2">☐ Lofstrand crutches: ☐ One ☐ Two</td><td>☐ Other:</td></tr>
<tr><td colspan="2">Current and Past Orthosis Worn:</td><td colspan="2">Left lower extremity
☐ None _____
☐ AFO _____
☐ KAFO _____
☐ SCO _____
☐ Other _____</td><td>Right lower extremity
☐ None _____
☐ AFO _____
☐ KAFO _____
☐ SCO _____
☐ Other _____</td></tr>
<tr><td colspan="2">Primary Reason Orthosis Does Not Meet Patient's Current Ambulation Requirements:</td><td colspan="2">Left lower extremity
☐ N/A
☐ Change in patient limb
☐ Weight gain or loss
☐ Change in functional activity level
☐ Prescription change
☐ Irreparable damage
☐ Wear and tear
☐ Other:</td><td>Right lower extremity
☐ N/A
☐ Change in patient limb
☐ Weight gain or loss
☐ Change in functional activity level
☐ Prescription change
☐ Irreparable damage
☐ Wear and tear
☐ Other:</td></tr>
<tr><td colspan="2">Additional Medical History Related to Walking Limitations:</td><td colspan="3"></td></tr>
</table>

Lower Extremity Strength

	Left Side						Right Side					
Strength	Zero	Trace	Poor	Fair	Good	Norm	Zero	Trace	Poor	Fair	Good	Norm
Hip	0	1	2	3	4	5	0	1	2	3	4	5
Flexion	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Extension	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Abduction	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Adduction	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Internal rotation	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
External rotation	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Knee												
Flexion	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Extension	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Ankle												
Dorsiflexion	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Plantarflexion	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Inversion	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Eversion	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Lower Extremity Range of Motion and Alignment

	Left Side	Right Side
Contracture(s): Ankle Knee Hip	☐ No ☐ Yes ☐ Degree:_____ ☐ No ☐ Yes ☐ Degree:_____ ☐ No ☐ Yes ☐ Degree:_____	☐ No ☐ Yes ☐ Degree:_____ ☐ No ☐ Yes ☐ Degree:_____ ☐ No ☐ Yes ☐ Degree:_____
Lower Extremity Sensation:	☐ Normal ☐ Impaired (describe):	☐ Normal ☐ Impaired (describe):
Hand and Finger Dexterity:	☐ Normal ☐ Impaired (describe):	☐ Normal ☐ Impaired (describe):

Joint Stability

	Left Side	Right Side
Ankle	☐ Within normal limits Instability / Laxity: ☐ Varus ☐ Dorsiflexion ☐ Valgus ☐ Plantarflexion	☐ Within normal limits Instability / Laxity: ☐ Varus ☐ Dorsiflexion ☐ Valgus ☐ Plantarflexion
Knee	☐ Within normal limits Instability / Laxity: ☐ Varus ☐ Dorsiflexion ☐ Valgus ☐ Plantarflexion	☐ Within normal limits Instability / Laxity: ☐ Varus ☐ Dorsiflexion ☐ Valgus ☐ Plantarflexion
Hip	☐ Within normal limits Instability / Laxity: ☐ Varus ☐ Dorsiflexion ☐ Valgus ☐ Plantarflexion	☐ Within normal limits Instability / Laxity: ☐ Varus ☐ Dorsiflexion ☐ Valgus ☐ Plantarflexion
Deformity Present? Foot Ankle Knee Hip	☐ No ☐ Yes, describe: _____ ☐ No ☐ Yes, describe: _____ ☐ No ☐ Yes, describe: _____ ☐ No ☐ Yes, describe: _____	☐ No ☐ Yes, describe: _____ ☐ No ☐ Yes, describe: _____ ☐ No ☐ Yes, describe: _____ ☐ No ☐ Yes, describe: _____

Pain Assessment

	Left Side	Right Side
Painful area(s): Rate on scale of 1-10, 10 is worst.	☐ Foot 0 / 10 ☐ Ankle 0 / 10 ☐ Knee 0 / 10 ☐ Hip 0 / 10 ☐ Arm 0 / 10 ☐ Back (left side) 0 / 10 ☐ Other:	☐ Foot 0 / 10 ☐ Ankle 0 / 10 ☐ Knee 0 / 10 ☐ Hip 0 / 10 ☐ Arm 0 / 10 ☐ Back (left side) 0 / 10 ☐ Other:
Activities that Increase Pain:	☐ Walking ☐ Sitting ☐ Lying down ☐ Other	☐ Walking ☐ Sitting ☐ Lying down ☐ Other
Pain and Walking:	☐ Worst with walking ☐ Limits walking ability ☐ Requires medical treatment and/or medication ☐ Other:	☐ Worst with walking ☐ Limits walking ability ☐ Requires medical treatment and/or medication ☐ Other:

Observational Gait Assessment

Primary Walking Dysfunctions to be Addressed:	Left Side ☐ N/A	Pelvis / Trunk / Other	Right Side ☐ N/A
Swing Phase:	☐ Drop Foot ☐ Inadequate ground clearance ☐ Inadequate knee flexion ☐ Inadequate limb advancement ☐ Circumduction ☐ Hip hiking	☐ Pelvic instability ☐ Pelvic protraction/retraction ☐ Lateral trunk lean ☐ Anterior/posterior trunk lean ☐ Increased lordosis ☐ Inappropriate weight transfer to lower extremity ☐ Overuse of upper extremity for balance and support ☐ Decreased walking speed ☐ Increased energy costs ☐ Reduce compensatory motions and excessive stresses	☐ Drop foot ☐ Inadequate ground clearance ☐ Inadequate knee flexion ☐ Inadequate limb advancement ☐ Circumduction ☐ Hip hiking
Stance Phase	☐ Foot / ankle instability ☐ Excessive knee flexion/ extension ☐ Excessive knee varum valgum ☐ Inadequate limb stability ☐ Vaulting		☐ Foot / ankle instability ☐ Excessive knee flexion/ extension ☐ Excessive knee varum valgum ☐ Inadequate limb stability ☐ Vaulting

Evaluation for Custom Orthosis

Does the patient meet one or more of the following criteria for a custom orthosis? Check all that apply.

The patient is unable to be fit with a prefabricated orthosis. ☐ Decreased/absent sensation ☐ Fixed/rigid foot deformity ☐ Significant knee instability / laxity ☐ Edema or volume fluctuation	☐ Yes
The patient has a condition necessitating the orthosis which is expected to be permanent or of long standing duration (more than 6 months).	☐ Yes
There is a need to control the knee, ankle or foot in more than one plane.	☐ Yes
The patient has a documented neurological, circulatory or orthopedic status that requires custom fabrication over a model (i.e. to prevent tissue injury).	☐ Yes
The patient has a weakness or deformity of the ☐ knee / ☐ ankle / ☐ foot which requires stabilization to achieve functional benefit.	☐ Yes
The patient has a healing fracture lacking normal anatomical integrity or anthropometric proportions.	☐ Yes

Functional Goals for Lower Extremity Orthosis

Check all that apply:

- ☐ Improve safety during walking activities
- ☐ Improve quality of walking pattern, e.g. obtain effective loading/load transfer, improve swing, reduce hip hiking of circumduction
- ☐ Dynamic stabilization of joint and/or musculature for purposes of improved ambulation
- ☐ Biomechanical assistance of leverage to facilitate more energy efficient gait
- ☐ Prevention / control of deforming forces by restriction of unwanted motion
- ☐ Reduction / transfer of weight bearing forces to reduce / prevent deformation / adverse pressure on limb
- ☐ Increase or maintain joint range of motion
- ☐ Decrease pain in compensatory joints
- ☐ Increase ADLs or IADLs (such as household or community ambulation or certain self-care tasks
- ☐ Improve walking ability on even or variable terrain
- ☐ Other:

Clinical Considerations

Is the patient willing and motivated to try a new style of orthosis	☐ Yes ☐ No
Does the patient have the cognitive ability to understand and follow directions relative to the wearing and use of this RGO?	☐ Yes ☐ No
Does the patient understand that they may require or benefit from physical therapy and gait training to maximize their functional outcomes, walking ability and the use of their RGO?	☐ Yes ☐ No
Does the patient understand the necessity of a structured follow-up program to monitor, wear and use of the mechanical components of the RGO?	☐ Yes ☐ No
Is the patient's weight greater than 265 pounds?	☐ 265 lbs or less ☐ over 265 lbs

Design / Componentry Recommendations

Posterior Stop:	☐ Yes ☐ No Product name and order code:
Shoes:	☐ Yes ☐ No Side: Bilateral Clinical rationale for inclusion: Manufacturer:_____ Shoe Size:_____ Style Number:_____ Type of Shoe: _____
Clinical rationale for a non-corrosive finish: ☐ N/A	☐ Exposure to substances potentially damaging to metal ☐ Patient incontinence ☐ Other:
Clinical rationale for inclusion of material such as titanium, stainless steel, carbon fiber, lamination, etc: ☐ N/A	☐ Increased need in strength secondary to patient size/weight ☐ Increased need in strength secondary to deforming forces ☐ Increased strength of device without substantial device weight addition secondary to patient physical limitations ☐ Increased torsional stability and control ☐ Other:
Clinical rationale for interface: ☐ N/A	☐ Protection of skin from shear forces generated by use of device ☐ Aid in suspension of device on leg ☐ Other:
Clinical rationale for varus/valgus and/or varum/valgum: ☐ N/A	☐ Stabilization of a weakened joint ☐ Correction of an existing deformity ☐ Maximize appropriate alignment for ambulation ☐ Other:
Clinical rationale for a molded inner liner: ☐ N/A	☐ Stabilization of a weakened joint ☐ Correction of an existing deformity ☐ Maximize appropriate alignment for ambulation ☐ Total contact positioning of heel/arch complex within orthosis ☐ Other:

Clinical Summary

The patient has been clinically qualified for RGO design orthosis: ☐ Yes ☐ No	
Notes:	
Practitioner Signature:	Date:

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