A Human Gait Institute Publication

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**EXPLORING LEG BRACING OPTIONS**

Thoughts, considerations, and references

**This document draws on the experiences of those of us who continue to actively explore bracing options with the goal of improving the quality of life of those impacted by musculo- skeletal limitations. www.humangaitinstiture.org**

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# Foreword

Exploring Leg Bracing Options is a workbook produced by The Human Gait Institute in accordance with its Mission Statement, which states:

*The mission of the Human Gait Institute is to assist people in reaping the benefits of innovative lower extremity orthotic technologies by supporting and/or conducting research, by fostering education and training for orthotists in these technologies, and by providing resources to support patients who are considering or using these technologies.*

The ***Human Gait Institute*** (“HGI”) was organized April 11, 2008. It is a Colorado non-profit corporation. It has obtained tax exempt status under Section 501(c)(3) of the federal Internal Revenue Code.

HGI is governed by its five Board members who have a combined 150 years of wearing leg braces, buying over 35 different types of braces. The Board members have gone through the process of obtaining leg braces in some form over these years. They currently all use innovative bracing technology.

The workbook is intended to be copied for personal use only. No part of it can be sold for profit. However, donations to HGI to help defray the cost of the workbook are greatly appreciated.

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**Acknowledgements:**

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# Introduction

Getting a new leg brace – Do your homework!

Getting a new lower extremity leg brace is usually the result of either a long-term disability or a recent event that has compromised one’s mobility. Bracing options can be as simple as providing temporary ankle support or as complex as a computerized electronic “exoskeleton”. Regardless of the brace chosen, the goal should be to optimize physical functioning.

Acquiring a new brace is not unlike acquiring a car. There are, in the orthotic market place, high-end luxury models that have top of the line options with all the bells and whistles, and there are braces that do not do what they say they will do and do not offer any remediation for the problem they are supposed to address. Like a well-informed car buyer, a well-informed brace buyer should research the options to see which provide the best solution to their problem before investing in a new brace.

Whether being fitted for a leg brace for the first time or getting a replacement for a current brace, it is important to carefully evaluate your current situation and determine your goals. These may include such things as

|  |  |
| --- | --- |
| Standing at the kitchen counter | Walking short distances outdoors |
| Transferring to a chair more easily | Hiking, biking, or other recreational sports |
| Standing and talking to friends | Participating in exercise programs |
| Walking short distances indoors | Limiting the use of assisted devices like canes |
|  |  |

There are also many personal, social, emotional, and financial impacts to consider. For example, insurance may limit choices or may only cover a part of the cost of a brace. Being aware of these potential impacts and giving serious consideration to your specific needs, desires, and goals and then addressing them up front can be helpful in making a smooth transition from what is to what will be.

This workbook is divided into 10 sections. The checklists do not have to be completed in any specific order and may be revisited as new information becomes available.

* Personal and lifestyle considerations
* Limitations and modifications
* Questions for the service providers
* Shopping for a brace - brace function questions
* Shopping for a brace - brace construction questions
* Shopping for a brace - shoe considerations
* Shopping for a brace - cost considerations
* Appendix -including a list of resources and a glossary

In addition to this workbook, HGI has a document, “Considering Custom Leg Bracing” on its website ([www.humangaitinstitute.org](about:blank)).

# Personal and lifestyle considerations

Knowing the diagnosis of my condition, its impact on my mobility, and the symptoms that I have help determine the optimal brace for my needs. Some diagnoses that have resulted in the need for lower extremity bracing include, but are not limited to: traumatic injury from an accident or as the result of surgery, peripheral neuropathies, stroke, the after effects of polio (Post-Polio Syndrome or PPS), Multiple Sclerosis (MS), Charcot-Marie Tooth (CMT).

Some of the diagnosed conditions may be temporary and some may be long-term, perhaps lasting a lifetime. Also, some conditions may stay the same or may progress over time.

## Diagnosis

What is the diagnosis that has warranted me considering getting a brace?

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## Condition

What is my understanding of my condition?

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## Symptoms—general

What issues do I have with mobility/muscle weakness?

### \_\_\_\_\_Drop foot—Do I have difficulty lifting my foot that results in

catching my toes on the ground?

### \_\_\_\_\_Ankle—Does my ankle rollover or collapse?

### \_\_\_\_\_Knee—Does my knee buckle/fail to hold me up?

### \_\_\_\_\_Knee—Does my knee bend backward (hyperextension) and/or

move side to side?

### \_\_\_\_\_Knee—Do I need to place my hand on my thigh to

stand or walk?

### \_\_\_\_\_Strength—Am I experiencing a decrease in strength/stability in

my extremities (leg, hip, ankle, knee)?

### \_\_\_\_\_Functional Skills—Have I noticed a difference in functional skills

### (such as: driving, navigating stairs)? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

## Symptoms—falling

### \_\_\_\_\_Do I have near falls?

### \_\_\_\_\_Do I fall? If yes, how frequently? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

### \_\_\_\_\_Does falling cause me or others concern?

### \_\_\_\_\_If I do not fall, am I afraid of falling?

### \_\_\_\_\_Direction of fall(s) (forward, backward, side)? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

### \_\_\_\_\_When I fall am I able to get up without assistance?

## Symptoms—balance

### \_\_\_\_\_Do I have difficulty keeping my balance?

### \_\_\_\_\_If yes, has the cause(s) been identified? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

### \_\_\_\_\_Have I consulted a professional to help me improve balance?

## Symptoms—pain

### \_\_\_\_\_Am I considering bracing to address pain issues in the back

and/or the lower extremities? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

### \_\_\_\_\_Where is my pain located? Left, right, both sides? Back, hip, knee,

ankle, foot? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_­­­­­­­\_\_\_\_\_

### \_\_\_\_\_Does pain affect my mobility? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

### \_\_\_\_\_Has any kind of external support helped my pain previously?

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### \_\_\_\_\_Temporary pain or discomfort can be part of learning and adapting

to a new brace. Do I think I will be able to tolerate the discomfort until I adjust?

### \_\_\_\_\_If the brace realigns my foot/leg structure, it may cause pain until

my body adjusts. What resources do I have for addressing this? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

## Symptoms—fatigue/endurance

### \_\_\_\_\_How far long can I walk before tiring? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

### \_\_\_\_\_How long can I stand before I need to sit? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

### \_\_\_\_\_Has there been a decrease in my activity level that has affected my

life style? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

### \_\_\_\_\_Do I become so fatigued that my concentration, mental acuity

is compromised? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

# Limitations and modifications

Although wearing a brace might be able to help mobility, there may also be other issues that need to be addressed. Addressing these issues and setting personal goals can help provide direction about whether any brace, a specific brace, in combination, perhaps, with assistive devices (canes, crutches, etc.) is the best solution for my needs. Also, these issues might be able to be addressed with modifications to my current brace.

## Physical factors

Each of the following conditions indicates the possibility of limiting the type of brace that can work for me: spasticity, flaccidity, neuropathy, muscle weakness, or body structure deformity.

### \_\_\_\_\_Does my condition include any of the above? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

### \_\_\_\_\_Am I or can I become physically strong enough to carry the

weight of the brace?

### \_\_\_\_\_Do I have any skin sensitivities that might limit the type of

materials used in the brace? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

### \_\_\_\_\_Has my provider addressed these issues with me

to help me decide which brace is best for me? If so, how?

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## Cognitive, emotional, social, cultural factors

These factors may influence my decision on getting a brace or they may indicate that special modifications need to be made to have the brace work for me. For example:

### \_\_\_\_\_Dependency—Aversion to, or disliking the idea of having to depend

on a brace

### \_\_\_\_\_Cosmetic issues—The brace looks ugly, “medical,” or bulky,

does not look good with my clothes, or other related concerns.

### \_\_\_\_\_Shoes—How shoes look and feel is important. (See section VII)

### \_\_\_\_\_Time and energy constraints—The brace may take time and effort

to learn to use, including putting it on and taking it off.

### \_\_\_\_\_Certain activities may require removal of the brace.

### \_\_\_\_\_Weight—The brace weighs too much and/or is clunky. I don’t

have the physical strength and energy to walk in the brace.

### \_\_\_\_\_Lifestyle and cultural issues—Family custom or practice is to not

wear shoes in the house. Some families/cultures would frown upon or discriminate against people who wear braces.

B. Cognitive, emotional, social, cultural factors (continued)

### \_\_\_\_\_Driving—Adaptions may be required to operate a motor vehicle.

### \_\_\_\_\_History—Long held or strong negative feelings about using a brace.

### \_\_\_\_\_Financial considerations—consider the relative value of the cost of

bracing and its benefits in relation to my other financial priorities.

### \_\_\_\_\_Other personal, social, cultural issues \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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## Possible trade-offs

Potential new brace wearers may find that there are activities they may have to do in different ways than previously. This may include some aspects of mobility or ease of activity, such as gardening or driving. Also, some muscles may be used in new ways.

## Alternatives

Have I considered other alternatives to bracing, such as surgery, wheel chair/scooter, crutches, canes, and walkers? What are my reactions to these alternatives?

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## Shoes

How hard are they to acquire? How to find them? Cost? Appearance? (See also section VII)

## Clothing

Selection of style (for example, skirt length or width of pant leg) and some fabrics may not work with certain braces.

## Other personal/lifestyle concerns

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# Questions for the service providers

Choosing experienced, competent providers (physician/orthotist/physical therapist) to assist me in the process of evaluating and selecting an appropriate bracing option is critical. Finding these providers can require significant effort (there is listing of some possible resources to aid me in this process in the appendix). It is also important to find out if my current healthcare insurance has any restrictions related to providers.

## Current providers

What are my choices? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Who are my current providers? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

## Qualifications

What are the general qualifications of the orthotist or service provider, including

education, training, experience, licensure, and/or certification.

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## Experience with the brace under consideration

### What are the provider’s specific qualifications and training in the

fitting and manufacturing of the brace being considered? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

### \_\_\_\_\_Is the provider interested and/or trained in making and fitting

innovative braces/orthoses, and willing to do so?

## Commitment

### What is the provider’s commitment to taking the process from start to finish? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

## References

### \_\_\_\_\_Can the provider give references for some wearers who

have had experience with the specific kind of brace I am

considering?

### What does the process of being fitted entail (number of visits and time

required)? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

## Follow up after delivery

### \_\_\_\_\_Is there care and follow-up after the brace is delivered?

#### What services does that include? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

#### For how long after the brace has been delivered? \_\_\_\_\_\_\_\_\_\_\_\_\_\_

### \_\_\_\_\_Is there additional cost for the aftercare services? \_\_\_\_\_\_\_\_\_\_\_\_\_\_

### \_\_\_\_\_Does the provider recommend post purchase aftercare visits to

check fit?

### \_\_\_\_\_Does the provider address shoe issues such as recommending

special shoes or special shoe modifications (see Section VII)?

## Modifications

### \_\_\_\_\_Can the provider make modifications to the brace over time?

### What kind of modifications are possible? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

### How extensively can the brace be modified? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

### Are there additional fees for making these modifications? \_\_\_\_\_\_\_\_\_\_\_\_

## Repairs

### \_\_\_\_\_In the case of damage, can it be repaired instead of being replaced?

### What kind of repairs are possible? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

### \_\_\_\_\_If so, are these repairs covered by insurance?

## Alternative orthotist / providers

What are the alternatives if the service provider is no longer available?

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## Training

### \_\_\_\_\_Is training in wearing the brace required or recommended? If so,

### what is an estimate of the time commitment and for how long?

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

### \_\_\_\_\_Does the provider do the training or are the services of

another professional, such as a physical therapist recommended?

### \_\_\_\_\_Will insurance cover the training by the orthotist?

### \_\_\_\_\_Will insurance cover the services of the physical therapist, and for

how many visits? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

## Other service provider questions

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

# Shopping for a brace—brace function questions

Before getting a brace, knowing how the recommended brace works and how it can be used to achieve my specific goals will help me anticipate what is involved in using the brace.

## Mechanically

### Does the brace have:

#### \_\_\_\_\_Some moving parts?

#### \_\_\_\_\_Some of its joints stationary/fixed?

#### \_\_\_\_\_Some combination of these?

#### \_\_\_\_\_Moving parts than can be adjusted?

\_\_\_\_\_Materials that will deteriorate with use and need to be replaced?

### Does the brace have components that aid walking?

#### \_\_\_\_\_Dynamic component?

#### \_\_\_\_\_Electronic component?

#### \_\_\_\_\_Do these components facilitate a natural gait?

#### \_\_\_\_\_Does it feel unnatural or awkward to me?

#### \_\_\_\_\_If it does feel awkward, is it possible to handle this issue

through practice or physical therapy?

#### \_\_\_\_\_Does the brace have a locking knee or ankle joint?

If so, which one or both? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

#### \_\_\_\_\_Can the joint(s) be adjusted to limit movement?

#### \_\_\_\_\_Can I do adjustments and minor repairs myself, (such as springs,

joint bolts, Velcro replacement)?

### Relationship to symptoms, deficits, and challenges. Does it address

concerns?

#### \_\_\_\_\_At the foot?

#### \_\_\_\_\_At the ankle?

#### \_\_\_\_\_At the knee?

#### \_\_\_\_\_At the hip?

How does it do so in each of these areas?

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

## Physical functionality

How does it work?

### What bio-mechanical principles are utilized in the brace to hold me up?

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

### What components help me walk?

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### \_\_\_\_\_Is the brace strong/robust enough to support my weight?

### \_\_\_\_\_Will it improve my balance? How? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

### \_\_\_\_\_In addition to the brace, will I also need to use a cane or cane(s),

crutches, a walker, or other assistive device(s)? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

#### \_\_\_\_\_Is the use of these acceptable to me?

#### \_\_\_\_\_Will use of this assistive device likely be short term or long term?

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

#### \_\_\_\_\_Are my hands, arms, shoulders capable of using such devices?

## Meeting expectations

In general, can I determine if the brace will do what it claims it will do?

### How does it do what it says it will do? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

### \_\_\_\_\_Is there any way for me to tell if it will do what it claims it will do

prior to purchase? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

## Ease of use

### \_\_\_\_\_Will it be challenging for me to put on and to take off?

### \_\_\_\_\_Will it be challenging for me to learn to use?

### \_\_\_\_\_Will it require an acceptable amount of time to learn to use it?

### \_\_\_\_\_Will I need professional help, such as physical or occupational

therapy, to be functional or proficient in using it?

### \_\_\_\_\_If I need physical therapy to be proficient in using it, approximately

how much will be needed? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

### \_\_\_\_\_Do I know what questions to ask to find the most appropriate

physical therapist or occupational therapist?

## Daily activities and special events

While wearing the brace, will I be able to:

### \_\_\_\_\_Go up and down stairs?

### \_\_\_\_\_Walk up and down slopes?

### \_\_\_\_\_Walk on uneven terrain?

### \_\_\_\_\_Drive?

### \_\_\_\_\_Run?

### \_\_\_\_\_Walk on Gravel?

### \_\_\_\_\_Actively participate in various sports and athletic activities that interest

me? Examples: golf, swimming, hiking, snow shoeing, basketball, mountain climbing, cycling, other physically challenging activities.

## Other functional concerns

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

# Shopping for a brace—brace construction questions

Knowing how a specific kind or style of brace is made has a significant impact on comfort, functionality, adjustability, and, care and maintenance.

## Brace options

### \_\_\_\_\_Ankle brace

### \_\_\_\_\_Ankle-foot orthosis (AFO)

### \_\_\_\_\_Knee-ankle-foot orthosis (KAFO)

### \_\_\_\_\_Knee brace (KO)

### \_\_\_\_\_Other\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

## Brace Materials

### \_\_\_\_\_Aluminum

### \_\_\_\_\_Electronic components

### \_\_\_\_\_Foam padding

### \_\_\_\_\_Graphite

### \_\_\_\_\_Carbon fiber

### \_\_\_\_\_Leather

### \_\_\_\_\_Leather straps and buckles

### \_\_\_\_\_Polypropylene plastic

### \_\_\_\_\_Steel

### \_\_\_\_\_Titanium

### \_\_\_\_\_Velcro (hook and loop) fabric straps

### \_\_\_\_\_Are my hands able to put on and fasten the brace straps?

### \_\_\_\_\_Am I allergic/sensitive to any of these materials? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

### \_\_\_\_\_Other\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

## Weight

### What is the approximate weight of the brace? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

### \_\_\_\_\_Do you and your provider, think this weight is manageable?

## Strength and durability

### \_\_\_\_\_Is it durable? How long can I expect it to last? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

### \_\_\_\_\_Does it have a warranty? If so, how long is the warranty? \_\_\_\_\_\_\_\_

### What does the warranty cover? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

### \_\_\_\_\_Can it be repaired?

### \_\_\_\_\_Can I do some of the repairs and maintenance myself? \_\_\_\_\_\_\_\_\_\_

### D. Strength and durability (continued)

### \_\_\_\_\_Can it carry my body weight? What is the weight it can safely

handle? \_\_\_\_\_\_\_\_\_\_\_\_\_\_

### \_\_\_\_\_Is the support adequate? Will the support be: back of the calf or

thigh or front of the calf or thigh? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

### \_\_\_\_\_Will it hold up for my desired physical activities?

### \_\_\_\_\_Will it feel safe for me? Will I have concerns that it will break?

### \_\_\_\_\_Do I have a backup in case the new brace is unavailable?

### Shoes (Also see Section VII)

#### \_\_\_\_\_Can the brace be worn without shoes?

#### \_\_\_\_\_If so, is it slick on the bottom of the footplate?

#### \_\_\_\_\_Does it require special shoes, or shoes with special characteristics?

#### If so what are these characteristics? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

### Care and maintenance

What are the care and maintenance requirements to keep it functional? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

### Wearing the brace

#### What does it look like?

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

#### How does it stay on the limb/what holds it to the body?

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

#### \_\_\_\_\_Is it visually acceptable to me?

#### \_\_\_\_\_Am I or my healthcare provider aware of other limitations that

#### might affect my ability to put it on and take it off (hand strength,

#### ability to learn new things, limitations in movement)? \_\_\_\_\_\_\_\_\_\_\_

#### \_\_\_\_\_Is a trial brace available?

### Any other construction concerns?

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

# Shopping for a brace—shoe considerations

Generally, shoes are an important part of how the lower extremity brace functions. Therefore, I will need to understand the shoe requirements when making my brace decision.

## Adapting to shoes

\_\_\_\_\_Am I prepared to change from the kinds of shoes I have always worn, if

required?

## Shoe size considerations

\_\_\_\_\_Will the brace require a shoe size change or the use of split sizes? \_\_\_\_\_\_\_

## Shoe construction considerations

### \_\_\_\_\_Are special shoes needed to work with the brace?

### \_\_\_\_\_Are shoes with special characteristics such as a flat sole, deep heel

cup, larger, deeper, or wider toe box, removable insole, cushioning or other characteristics required for the bracing system to work more effectively? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

### \_\_\_\_\_Will I be limited in the kind and/or the style of shoe, such as

dress shoes, limited heel height, slip-ons, sandals, slippers?

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

### \_\_\_\_\_Will shoes need to be modified to work with the brace?

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

#### \_\_\_\_\_Is the sole of the shoe modifiable?

#### \_\_\_\_\_Will insurance pay for the modification work?

## Shoe cost considerations

### \_\_\_\_\_Will the costs and the limitations of the shoe selections affect my

### decision regarding a brace?

### \_\_\_\_\_Am I willing/able to advocate for my needs in a shoe store?

# Shopping for a brace—cost considerations:

## Initial cost

### \_\_\_\_\_What is the initial cost of the brace? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

### \_\_\_\_\_What portion will I owe? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

## Additional cost(s)

Are there any additional costs beyond the cost of the brace itself, such as

### \_\_\_\_\_After-care services by the provider, including modifications/repairs

If so, what are these services/costs? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

### \_\_\_\_\_Physical Therapy? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

### \_\_\_\_\_Travel costs? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

### \_\_\_\_\_Special shoes? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

### \_\_\_\_\_Special inserts and/or other orthotic inserts, such as a Solid Ankle

### Cushion Heel (SACH). \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

### \_\_\_\_\_Other assistive devices required (even temporarily, such as canes)?

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

### \_\_\_\_\_Training services and training equipment \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

### \_\_\_\_\_Video-taping or video-instruction available? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

### \_\_\_\_\_Other considerations? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

### \_\_\_\_\_Will insurance pay for any of these additional costs?

If so, how much will it pay? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

## Brace warranty

### \_\_\_\_\_Is there a warranty to cover replacement and/or breakage costs?

What does the warranty cover? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

### \_\_\_\_\_Is there an extended warranty available?

What does an extended warranty cost? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

## Insurance

### \_\_\_\_\_Is the acquisition cost covered by insurance? If so, how much will

it pay? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

### \_\_\_\_\_Do I need to get insurance pre-authorization?

### \_\_\_\_\_Do I need to get insurance pre-certification?

### \_\_\_\_\_Is the provider approved by my insurance?

### \_\_\_\_\_Will the provider file the claim?

### \_\_\_\_\_If the provider doesn’t file the claim, will the insurance company

### allow me to file my claim directly?

### \_\_\_\_\_Is the provider approved by my insurance for this kind of brace?

### \_\_\_\_\_Is there an appeals process if the brace costs are denied initially?

### \_\_\_\_\_Will my supplemental insurance pay for my claim if my

primary insurance denies all or part of the claim?

### \_\_\_\_\_Is there a restriction on how often I can get a brace?

### If so, what is that period? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

## Out of pocket payments

### \_\_\_\_\_Is there an amount or percentage of the cost that is required up

### front? If so how much is this? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

### \_\_\_\_\_Is a payment plan available?

### \_\_\_\_\_Do I have a Health Savings Account (HSA) or a Flexible Savings

### Account (FSA) account I can use?

### \_\_\_\_\_Will my total medical expenses in the current tax year (including

the total cost of the brace) be high enough so a portion of the cost

will qualify as a tax deduction (if I itemize)?

## Cost assistance

\_\_\_\_\_Are there other assistance programs available for the cost of the brace?

If so what are these programs? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

## Total costs

What is the total cost to the wearer of getting the brace and being able to function in it? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

## Loss/Damage Insurance

\_\_\_\_\_Can the loss of or damage to the brace be covered by homeowner/renter

insurance or does it have to be scheduled or need a special rider?

## Other cost considerations

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

# Summary

Getting a new leg brace can seem like a very challenging process because there are so many considerations. But it is a process that can and should be approached in a systematic and orderly fashion to insure the best possible outcome.

The good news is that there are a lot of innovative and exciting bracing options available today. Many incorporate new technologies that include sensors, lighter weight materials, and improved joints. Because of this, it is important to find and consult with medical professionals including your doctor, orthotist, and physical therapist.

“Do my Homework!”, so you can assess your individual requirements as you evaluate bracing options. The reality is that no one knows you better than you.

Completing the checklists provided in this workbook can help you begin your own process.

# Appendix

## Web Sites

Listed below are some websites that be helpful in researching bracing options. There are also many disease specific websites.

### [**www.post-polio.org**](about:blank) This is the official web site for Post-Polio Health International in St. Louis, MO. It not only provides articles relevant to polio and Post-Polio Syndrome, but also lists locations of support groups, medical professionals, and book lists.

### [**www.polioplace.org**](about:blank) Stories, video lectures on topics related to polio.

### [**www.eastersealscolorado.org**](about:blank) At Easter Seals Colorado, there is a link to news about polio survivors in Colorado as well as a link to the latest issue of the *Colorado Post-Polio Connections* newsletter.

### [**www.poliotoday.org**](about:blank) Salk Institute for Biological Studies. PolioToday.org is designed to raise awareness of post-polio syndrome and to be a resource for polio survivors.

### [**www.survivorsofpolio.com**](about:blank) Polio Survivors in the 21st Century is dedicated to polio survivors in the 21st century along with their families, friends and the medical community.

### [**www.international-post-polio-support.org**](about:blank)International Post-Polio Support Organization Bulletin Board. A discussion forum and resource for current trends and research relating to polio and Post-Polio syndrome. You must join the group to participate.

### [**www.mayoclinic.org**](about:blank) General website related to health issues, including polio, post-polio syndrome, vaccinations, and other related topics.

### [**www.newmobility.com**](about:blank) The magazine and online site is devoted to active wheelchair users and encourages the integration of active-lifestyle wheelchair users into mainstream society.

### [**www.webmd.com**](about:blank) A general medical web site that has information related to polio, post-polio syndrome and other polio related topics.

## Books, DVDS, Videos

### The Colorado Post-Polio Organization (CPO) has a lending library available to Colorado Support Group Facilitators, and post-polio survivors. To receive a complete list of resources available contact: Nancy Hanson, CPO/Easter Seals Liaison at 303-233-1666 Ext. 237 or [**nhanson@eastersealscolorado.org**](about:blank)

### ***The Polio Paradox***, 2002, Richard Bruno

### ***Managing Post-Polio: A Guide to Living Well with Polio*, 2006, Lauro Halstead.**

### ***Post-Polio Syndrome: A Guide for Polio Survivors and their Families*,** 2001.

*\*DISCLAIMER: Health Care Professionals and web site referrals are submitted by Post-Polio individuals and are not endorsed or approved by either the Colorado Post-Polio Organization or Easter Seals Colorado. ALWAYS check with your personal physician for all medical questions, concerns, and referrals.*

# Glossary (terms used in this workbook)

**Charcot-Marie Tooth (CMT)**

CMT is the most commonly inherited peripheral nerve disorder. CMT causes damage to the peripheral nerves, which carry signals from the brain and spinal cord to the muscles, and relay sensations, such as pain and touch, to the brain and spinal cord from the rest of the body.

**Flaccidity**

Flaccidity is characterized by weakness or paralysis and reduced muscle tone without other obvious cause (e.g., trauma). This abnormal condition may be caused by disease or by trauma affecting the nerves associated with the involved muscles.

**Ankle foot orthosis (AFO)**

Ankle foot orthosis (AFO) is commonly used to assist the ankle and allow the foot to clear the ground during the swing phase of walking. There are many varieties, most have a molded heel cup that extends behind the calf.

**Knee-ankle-foot orthosis (KAFO)**

Knee-ankle-foot orthosis (KAFO) allows a patient to stabilize the knee and ankle. While it’s very hard work, people using KAFO’s, even those with no hip flexion, can take steps by swinging their legs while sometimes supported by forearm crutches. There are many types of KAFOs, including plastic and metal braces.

**Knee orthosis (KO)**

A knee orthosis (KO) is designed to control knee and ankle motion. It extends from the upper portion of the thigh, crossing the knee and ankle, and terminating at the toes.

**Multiple-sclerosis (MS)**

MS is a chronic degenerative disease of the central nervous system. Usually appearing in young adulthood and manifested by one or more mild to severe neural and muscular impairments, as spastic weakness in one or more limbs, local sensory losses, bladder dysfunction, or visual disturbances.

**Neuropathy**

The term peripheral neuropathy has been used to refer to nerve damage that specifically causes pain in the shoulders, thighs, hips, or buttocks.

**Post-Polio Syndrome**

Post-polio syndrome is a condition that affects the survivors of polio decades after the acute illness of poliomyelitis. Major symptoms include pain, fatigue, and weakness.

**Spasticity**

This is a condition in which certain muscles are continuously contracted. This contraction causes stiffness or tightness of the muscles and can interfere with normal movement, speech, and gait.  Spasticity is usually caused by damage to the portion of the brain or spinal cord that controls voluntary movement.