

Bracing – Getting the Proper Fit

Q & A with Primary Care Physician

[Dr. Marny Eulberg, MD](#)



Question: I am 72 yrs. Old and have been suffering from PPS for 4 yrs. Lately my ability to walk has deteriorated severely. I wonder if I can use the DBS braces, which I saw in YouTube.

I live outside the US and these braces are not available here, and I cannot find them Ebay or Amazon. Are they an option I should consider?

Answer: I appreciate your concise question but, in order, to accurately make reasonable medical advice I would need more detail. For you, as for all of us over age 50, it is important to make sure that the worsening of your walking is not due to some condition other than polio that would require a totally different treatment than that for PPS. I would recommend that, rather than trying to solve the problem by yourself that you consult with a physiatrist in your country/locale. [Post-Polio Health International's Directory](#) lists health professionals with expertise in polio, from all over the world. Ex: In your case there is an occupational therapist at Milbot—The Israel Center for Technology and Accessibility. She may be able to help you locate a physiatrist/rehab specialist in your area.

Let me start with some generalities concerning bracing for polio survivors:

- Braces (orthoses) can be helpful for many polio survivors but, at times, they also may be more of an impediment than a help.
- Braces are most helpful for supporting a weak limb such as when a person has foot drop and is tripping over their toes or when their knee buckles or is unstable.
- Properly designed, a brace can also correct or partially correct deformities of the foot, ankle, or knee.
- Some of the newer braces can provide “power” to increase forces when walking. The Human Gait Institute, a non-profit organization developed by polio survivors, has created a workbook that persons considering bracing for the first time or considering using new kinds of bracing can use to help them decide what kind of brace they might need or benefit from. It can be accessed at www.humangaitinstitute.org and is listed under “Resources” and is titled “Exploring Leg Bracing Options”.
- It must be remembered that, even though some braces now only weigh ounces, they all add some weight to the limb that must be lifted with each step.
- They also will take up some space in the shoe. This can be helpful if the foot to be braced is smaller than the other foot but may also mean that the brace wearer will need to buy new larger shoes or mis-mated shoes.

Nearly all polio survivors have muscle atrophy of the affected limb so that the size of their foot, calf, or thigh is much smaller than normal and therefore their braces nearly always need to be custom made in order to fit and function well. The braces available on the internet are made for persons with normal sized limbs. They may come in small, medium, and large and left and right, but they are NOT made with a small calf section and a different size thigh section that would be needed to fit a person with a very small calf and a normal size thigh. Additionally, I am not aware of any internet site, including Amazon, that will bill one’s health insurance for the brace.

Certified orthotists (brace makers) have a minimum of 4 years of training with most of the younger orthotists having at least a master’s degree in orthotics and/or prosthetics. They are experts in evaluating gait abnormalities, what can be done to correct those abnormalities, and know the advantages and limitations of all the various materials that can be used to make a brace. The process of making a custom brace involves making a cast of your leg and taking precise measurements so that the brace will fit your body. Orthotists can bill most insurances and will let you know in advance what portion you’d have to pay.

It has been said that the doctor who treats him/herself has a fool for a patient. That can apply to the polio survivor who tries to decide what kind of brace they need. As a physician, I go to the orthotist with an idea of what I might need but together we discuss the reasons why the orthotist believes a different design or a brace made of different materials would work better for me. The final product is rarely what I originally thought I needed!

On a final (and personal) note, I do have a Dynamic Bracing Solutions (DBS) brace and am very satisfied with it because (in my case) a DBS short leg brace keeps my knee from buckling; in a conventional brace I would need a long-leg brace locked at the knee to keep my knee from collapsing forward.



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There are only 3-4 orthotists in the world who are licensed to do the evaluation, casting, and fitting of DBS braces and they all are in the United States. They are not available via the internet because they are custom designed and custom fit for each person which requires in-person evaluation and measurements.

The fit must be very precise because there are no adjustable straps or adjustable joints. The evaluation and casting process takes 4-8 hours of hands-on work by the orthotist. The making of the mold and fabrication process requires an additional 20-80 hours of detailed work and then the fitting and training in the use of the DBS brace takes two to three days of one-on-one work with the orthotist.

DBS braces can be very expensive. The cost is based on the complexity of the problems to be solved but starts from a base price of about US \$8,000 for a single AFO to around US \$15,000 for a single KAFO. Insurance rarely pays for DBS braces.

Do I recommend DBS orthoses to my patients? It depends on things such as how they present physically, their financial resources, and their motivation – do they have a willingness to persevere even when things get tough and do they have the willingness and ability to stick with an exercise program for weeks to months.

When people start with the DBS brace, something happens that doesn't often happen in the traditional orthotic world - and that's gait training, which is a real challenge.

Patients have to unlearn gait patterns they've been using for 50 years or more. Walking is so automatic. Unlearning a pattern that has basically become unconscious takes a lot of work and can be frustrating.



The casting process - Some of it is done with the patient standing.



Orthotist working on a cast with blue buildups and lines indicating where the upright "bars" will be made.



New brace training (in an informal setting)

I saw a physical therapist about once a month for about 3 years, when I realized how easy it to backslide and revert to old walking patterns that, for years, kept me (the polio survivor) walking safely albeit awkwardly.

I would recommend polio survivors consult with a rehabilitation professional prior to getting a new brace. New orthotic materials and techniques are being rapidly developed which may mean your rehab professional may not be familiar with some of the newer devices and may have to do some research with you. The best outcomes are when an orthotist, a physical therapist, a physician who knows the patient well, AND the patient work together as a team!