Defeating foot drop

A range of treatments can help you stay active.

by Lori De Milto

Jill Walsh had been feeling so well physically in July 2011 that she actually competed in a half triathlon. So it came as a surprise to her when, just months later, in December, she had a relapse of her multiple sclerosis. “When I came out of that, I had weakness in my left foot. I couldn’t lift it up or push it down,” says the 52-year-old retired New York state trooper and mother of three.

Walsh had foot drop, a common problem in people with MS, though no one knows the precise number of people who are affected, says Patty Bobryk, a physical therapist at Orlando Health MS Comprehensive Care Center. In foot drop, the toes drop down instead of pointing up when attempting to lift the foot. This makes it hard to walk, especially on curbs, stairs and uneven surfaces.

Foot drop can:

- Be permanent or temporary
- Affect one foot or both feet
- Be the same in both feet or worse in one foot than the other
- Start during a relapse and go away after recovery

Walsh, who lives in Jamesville, New York, got a custom-fitted brace called an ankle-foot orthosis to help her walk, based on a recommendation from a friend who’s an orthotist (a specialist in using mechanical devices to support weakened or abnormal joints or muscles).

The brace holds her foot in a normal position and prevents it from dropping.

Walsh went back to competing; however, as her MS worsened, she switched from triathlons to just cycling races, and then from a two-wheeled bicycle to a three-wheeled bicycle. In 2014—four years after being diagnosed with MS—Walsh qualified for the USA Paralympic Cycling Team, and the following year, was the gold medal winner, making her the road para-cycling world champion. She will seek to defend that title in the 2016 contest in Brazil.

Different people, different symptoms

Foot drop (also called drop foot) is caused by damage to the nerves that control the muscles used to flex the ankle. “The brain has decided it wants to lift up the foot. It sends the impulse to the muscles. Somewhere in the pathway, the message is blocked or short-circuited,” Bobryk says.

[foot-drop]

Along with spasticity in the muscles that make the toes go down, other factors can contribute to or accompany foot drop, including fatigue, weakness and loss of the sense of where the foot is in space (this sense is called proprioception).

People who have foot drop can stumble and fall when their toes don’t lift up. That’s what happened to Jonna Patton, 43, a former social worker for the state of Wyoming, and a former college basketball player who has been living with MS since 1997. “I went out for a run one day and was stumbling. Then I was really off balance when I was coaching basketball,” says the Cheyenne resident. Patton relied on a cane for balance until her MS—and her foot drop—were properly diagnosed and treated. Walsh experiences loss of proprioception, so she has to watch her foot as she walks since she can’t feel where it is as she takes a step.

Jonna Patton wears a functional electrical stimulation device to hike five miles in the 2014 Hike MS event in Colorado. The cuff below her right knee delivers electric stimulation to the nerve and muscles that lift her toes. A gait sensor is located under her heel. Photo courtesy of Jonna Patton

People with foot drop often find additional ways to compensate, sometimes by swinging the leg out to the side to take a step instead of bending the knee and lifting the foot, or by lifting the hip and knee really high to clear the foot. But this compensation "strains and stresses the body, and requires more energy for walking," Bobryk says. Patton found out that she had been compensating for her foot drop when she saw a physical therapist. "That explained why I would fall from time to time," she says.

The right treatment

Physical therapists who specialize in MS usually assess foot drop, and work with doctors to design the best treatment (see "Treatments for foot drop" below) for an individual's lifestyle and condition. "There's always something we can do," says Bobryk, who recommends keeping an open mind, since treatments that people are reluctant to try often help them walk farther or feel more energetic. "Don't just accept that you have this challenge. See what you can do to overcome it," Patton says.

Working with her physical therapist, Patton chose a functional electrical stimulation device. With gentle wireless stimulation, the device temporarily restores the normal nerve-to-muscle messages, signaling the leg muscles to lift the foot when she walks. A sensor in the heel of her shoe tells the "brains" of the unit where her heel is, and sends the right signals at the right time. "It has given me my life back," says Patton, who wears the device to hike five miles in the annual Hike MS event in Colorado and wears it for nearly every activity outside her home.

"If you want to keep doing what you love, there's a way to do it," says Walsh. "It's probably not going to be the same way, like when I went from a two-wheeled bike to a three-wheeled bike. As new physical challenges develop, I challenge myself to adapt so that I can keep moving."

Treatments for foot drop

- **Physical therapy:** Exercise to strengthen or maintain the muscles helps relieve foot drop, and is used with other treatments. Some people only need a home exercise program, designed by a physical therapist. Others may also need therapy at a center. If spasticity is involved, stretching can be very helpful.
- **Ankle-foot orthosis and other braces:** These lightweight, easy-to-wear devices hold the foot in a normal position and prevent it from dropping. Ankle-foot orthoses, the most common type used in foot drop, are lightweight devices that are hidden by socks or pant legs. An orthotist (a specialist in using mechanical devices to support weakened or abnormal joints or limbs) makes and custom fits the ankle-foot orthosis for each person.
- **Functional electrical stimulation:** These custom-fitted devices use gentle electrical stimulation, delivered through a leg cuff worn below the knee, to compensate for weakness. FES devices signal the peroneal nerve (just outside the knee), which in turn signals the leg muscles to lift the foot at the right time. One type uses a sensor in the heel of a shoe to send the signal. The other sends the signal when the knee bends. An orthotist or a physical therapist custom-fits the device and does a trial for each person to see if it works. These devices can help many people living with MS walk faster and more easily, but they may not work for some people, depending on the type and extent of nerve damage they have. Others simply may not be able to tolerate the stimulation.
- **Medication:** Ampyra® is an oral drug to improve walking speed in people with MS. People with a history of seizures or moderate-to-severe kidney disease shouldn't take it. For spasticity, medications to relieve symptoms might be used along with exercise.

Insurance coverage for these treatments varies. Physical therapist Patty Bobryk recommends checking your policy's coverage for rehabilitation services (physical therapy), durable medical equipment (bracing) and medications. Medicare covers physical therapy and durable medical equipment, but coverage is limited and co-pays may be required. Braces typically cost between $40 and $700, but most are $200 or less. Functional electrical stimulation devices are typically about $5,000 to $6,000 but may cost up to $14,000, depending on the specific configuration for an individual, and usually aren't covered by insurance. Insurance usually provides some coverage for medications.

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To learn more about factors that may affect walking, visit Walking (Gait) Difficulties.