

The CME program will start on the hour.

Prescription of Assistive Technologies for Persons with Multiple Sclerosis

VA



**U.S. Department
of Veterans Affairs**

Veterans Health
Administration

*Multiple Sclerosis
Centers of Excellence*



**National
Multiple Sclerosis
Society**

VA MS Centers of Excellence Mission

- Improve the quality and consistency of health care services delivered to Veterans with MS across the US.
- Expand care coordination between VA medical facilities through the development of a national network of MS providers within the Veterans Health Administration.

VA



U.S. Department of Veterans Affairs

Veterans Health Administration
Multiple Sclerosis Centers of Excellence

Vision & Mission Statements

Our Vision:

A World Free of MS.

Our Mission:

We will cure MS while empowering people affected by MS to live their best lives.



National
Multiple Sclerosis
Society

Together We Are Stronger.

Diversity, Equity & Inclusion Statement

The National Multiple Sclerosis Society is a movement by and for all people affected by MS. Our voices and actions reflect diversity, equity and inclusion.

We welcome and value diverse perspectives.

We actively seek out and embrace differences.

We want everyone to feel respected and be empowered to bring their whole selves to ensure we make the best decisions to achieve our mission.



National
Multiple Sclerosis
Society

Together We Are Stronger.



Ben Dons is a physical therapist at the John Cochran VA in St. Louis, MO who specializes in the treatment and rehabilitation of persons with multiple sclerosis and other movement disorders. He has over 10 years of experience working with persons who have multiple sclerosis in acute rehabilitation and outpatient settings. He specializes in vestibular rehabilitation and bracing for individuals with gait dysfunction.

Over the past few years he has been running a specialized bracing clinic with an orthotist at the John Cochran VA to help veterans walk and improve their functional independence. He is also the co – coordinator for the neurological physical therapy residency at the St. Louis VA and is a therapist in the interdisciplinary movement disorder clinic in neurology. He is certified in PWR! Rehabilitation, LSVT Big and treatment of advanced vestibular disorders. Outside of work he enjoys spending time with his wife and 3 kids at their community garden.

Prescription of Assistive Technologies for persons with Multiple Sclerosis

Ben Dons, PT, DPT, NCS

Board-Certified in Neurological Physical Therapy

Vestibular Rehabilitation Therapist

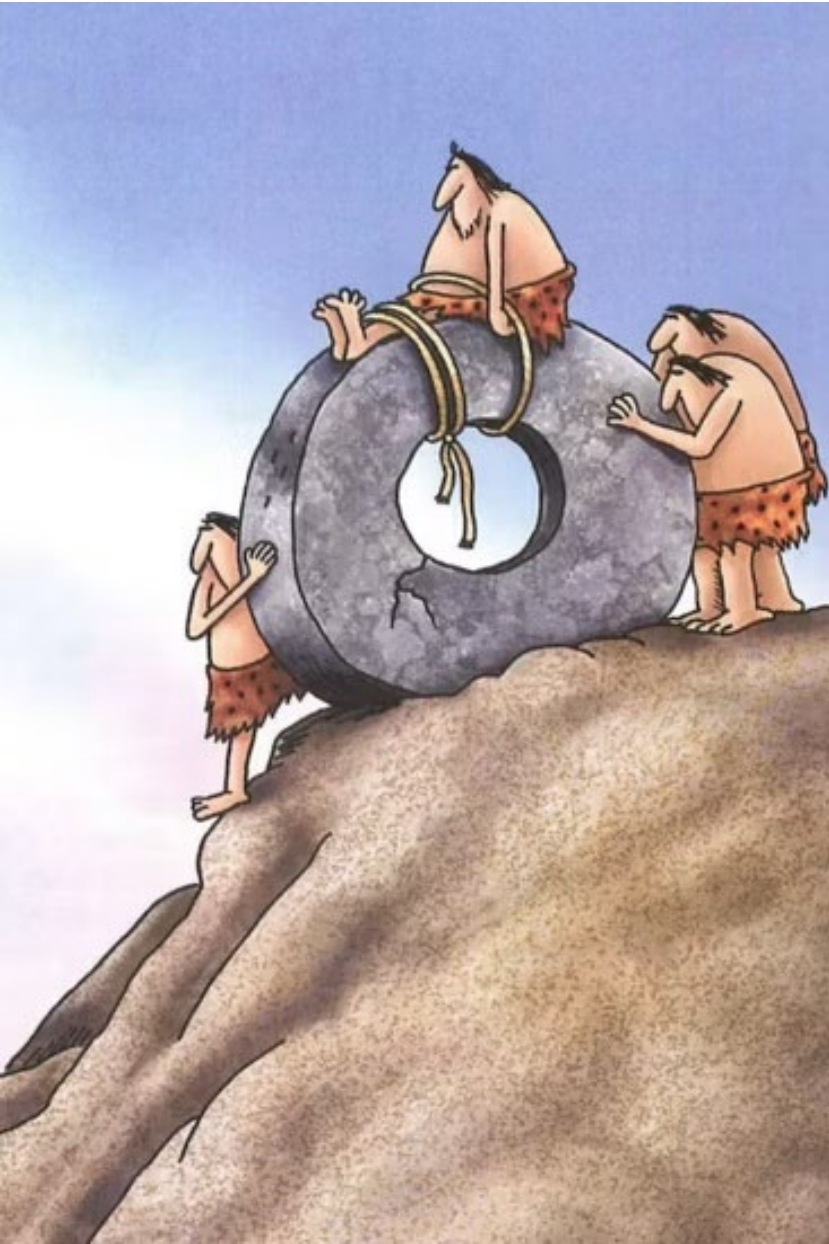
John Cochran VA St. Louis

Objectives

- ▶ Define what assistive technology is and how it can be applied to this population
- ▶ Become familiar with bionic clothing and how they can promote functional independence
- ▶ Overview of a mobility assessment and ways to promote earlier activity
- ▶ Identify newer devices on the market which promote greater independence for persons with multiple sclerosis
- ▶ Review case studies on assistive device prescription

Disclosures: none, the videos and images in this presentation were provided for free from National Multiple Sclerosis website and Bioventus websites without cost or incentive.

Abbreviations: -PwMS: People with MS; AFO: Ankle Foot orthosis



What is Assistive Technology

- ▶ Assistive Technology (AT) is any item, piece of equipment, software program, or product that is used to increase, maintain, or improve the functional capabilities of persons with disabilities.
 - ▶ Can be low tech communication boards or felt pads
 - ▶ Can be high tech computer systems or software/phone apps
 - ▶ Can be prosthetic devices like AFO or devices that attach to your chair.
 - ▶ Can be wearable devices or motorized wheelchair and scooters**

Assistive Technology Professional

- ▶ Enhance patients' ability to access their environment
 - ▶ Depends on discipline!
 - ▶ Occupational therapists specialize in this area especially when it comes to activities of daily living (ADL)
 - ▶ Physical therapists typically have expertise in wheelchair/seating
- ▶ Physical Therapist Perspective
 - ▶ Improve ambulation or community engagement
 - ▶ Improve quality of life
 - ▶ Discuss ways technology can facilitate recovery from a relapse

Identifying Assistive Technology needs

▶ Important Questions for Patients:

▶ Individual:

- ▶ Are they already using technology?
- ▶ Are they using high- or low-tech devices?
- ▶ Do they want help?
- ▶ Does Fatigue play a role?

▶ Environment

- ▶ Do they live independently
- ▶ Do They require assistance for mobility or activities of daily live?
- ▶ Are they a household, limited-community or community ambulator?

▶ Task

- ▶ What are they trying to accomplish?
- ▶ Does this device promote further independence?

▶ Tool

- ▶ What devices are available and best fit with this clients needs?

Powered Mobility

- ▶ When is the right time to prescribe a power chair or scooter?
 - ▶ *Earlier is better!*
 - ▶ *When you have to start having to think “How am I going to walk there?”*
 - ▶ Start the conversation earlier before they are ready
 - ▶ Pushing a manual wheelchair should not be considered “exercise”
- ▶ What type of chairs are available?
 - ▶ Scooters for limited community ambulators
 - ▶ Power wheelchairs for household ambulators
- ▶ Not always covered by insurance until patient has met medical necessity - which is why our documentation is important

Wheelchair Adaptions



- ▶ AI powered devices
 - ▶ LUCI- Attachable hardware/software product
 - ▶ Uses cloud and sensor-fusion technologies to provide security, stability, and connectivity for power wheelchairs.
 - ▶ Attaching LUCI to their new or existing power chairs, drivers gain access to intuitive technology to prevent falls off ramps, curbs and other obstacles
- ▶ Energy Conservation devices
 - ▶ Drive Assist options
 - ▶ Companion, Smart Drive
 - ▶ Google Home, Alexa
 - ▶ Smart lights, smart devices and automated routines



Wheelchair Controllers

▶ Munevo

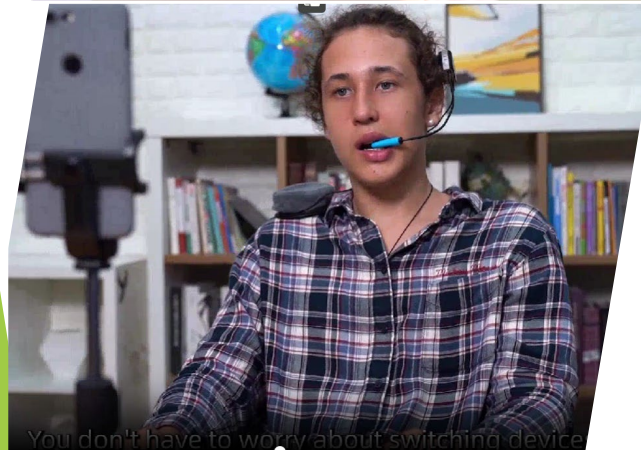
- ▶ Control for electric wheelchairs that uses smart glasses - developed based on insights from wheelchair drivers
- ▶ FDA registered for power wheelchairs

▶ Glassouse

- ▶ Wearable control device for smart devices
- ▶ Allows user to switch devices

▶ Tongue drive options

- ▶ Utilizing tongue movements to control wheelchair movements, smart screen displays.



You don't have to worry about switching device

Apps and Programs *you can set up in seconds!*

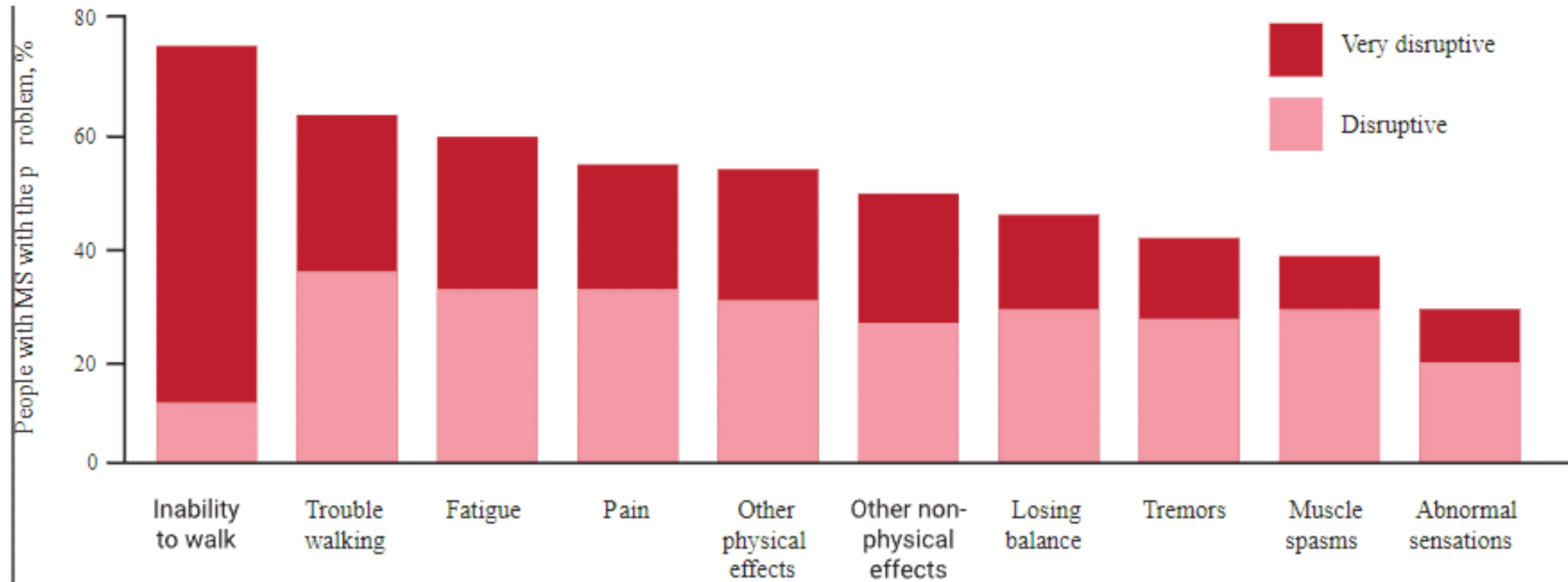
- ▶ For visual or hearing difficulties
 - ▶ Apple and Google have accessibility options on your iPhone that help you scan for sounds and translate text to speech.
 - ▶ *Search: “Apple Voice Control or Scanning”*
 - ▶ <https://www.youtube.com/watch?v=owBzKbpiNjE>
 - ▶ *Hands free access of Android Phone*
 - ▶ <https://www.youtube.com/watch?v=GIDaz4Nm5lE>
- ▶ Assistive Access on your phone
 - ▶ Create “most used aps” with larger buttons
 - ▶ Search “Apple Assistive access”



Benefits of earlier intervention

- ▶ Earlier prescription of wheelchairs is imperative in the Multiple Sclerosis population
 - ▶ Why?
 - ▶ PwMS benefit from greater **community engagement** as the disease progresses
 - ▶ Having access to your community will improve **physical and emotional resilience**
 - ▶ **Energy Conservation!** Activities of daily life require a lot of energy, so being able to use a wheelchair earlier is going to save “gas” for times when it is really needed.’
 - ▶ When?
 - ▶ When Patients self report household mobility?
 - ▶ When Patients are no longer attending community events ?
 - ▶ When patients have to start thinking about “how am I going to walk there”

Gait Deficits in Multiple Sclerosis



Larocca NG. Impact of walking impairment in multiple sclerosis: perspectives of patients and care partners. *Patient*. 2011;4(3):189–201. Motl RW, Learmonth YC. Neurological disability and its association with walking impairment in multiple sclerosis: brief review. *Neurodegener Dis Manag*. 2014;4(6):491–500.

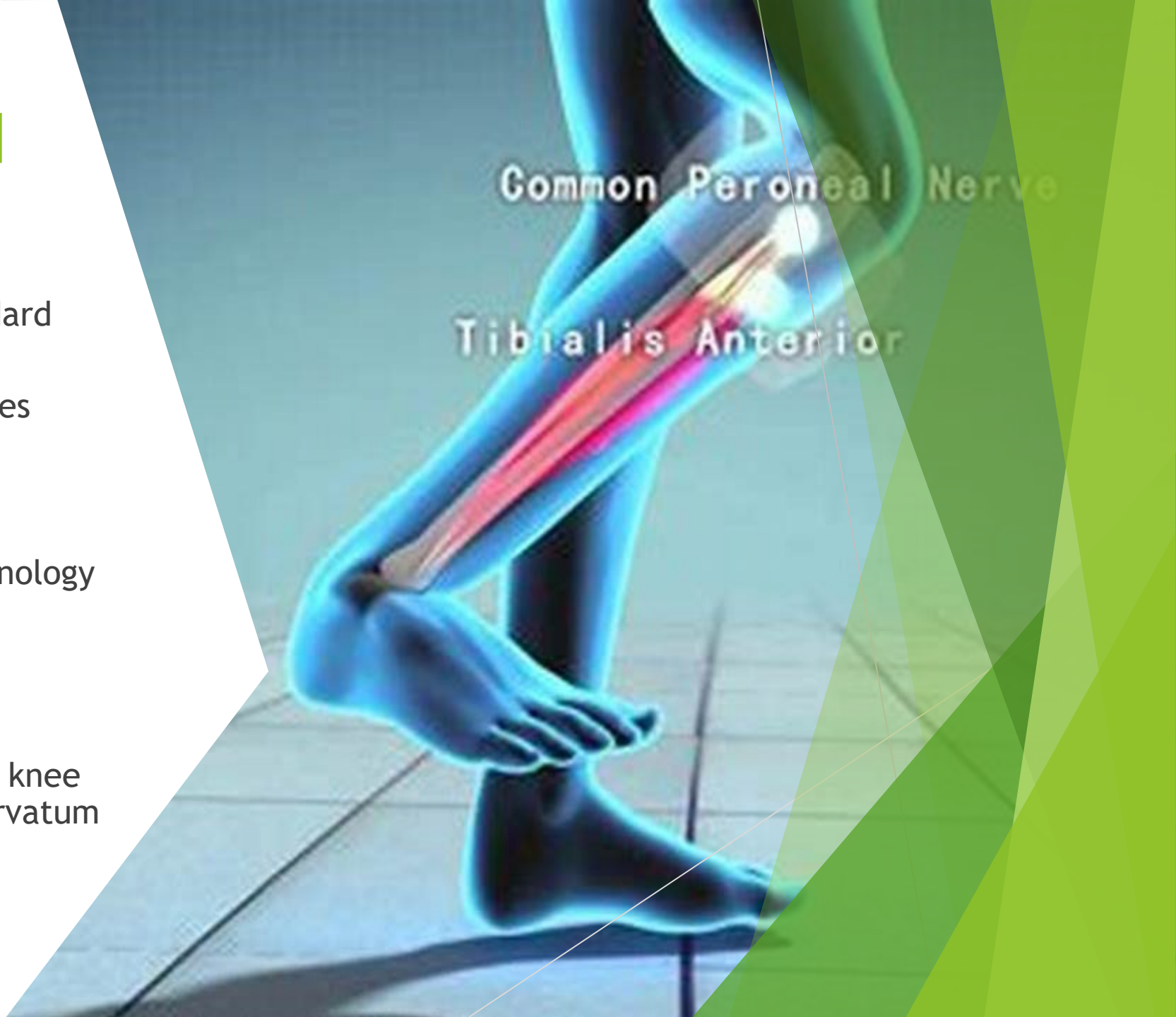
Functional Electrical Stimulation (FES)

- ▶ Multiple devices on the market: Bioness, Cionic, walk-aid...
- ▶ Bioness (what I use in the clinic)
 - ▶ Provides stimulation of the anterior tib, peroneal, hamstrings or quadricep muscles
- ▶ Improves foot drop, improves energy conservation, prevents falls
- ▶ Offers training modes for exercise when standing is difficult



Bioness/Walk-Aid

- ▶ Pro:
 - ▶ Reduces skin issue of standard AFO's
 - ▶ Easier donning/doffing shoes
 - ▶ Training Modes
- ▶ Cons:
 - ▶ Not everyone can use technology effectively
 - ▶ Battery maintenance
 - ▶ Cannot get wet
 - ▶ Doesn't completely control knee hyperextension/genu recurvatum



Cionic Sleeve

- ▶ Fits on your leg like a knee brace
- ▶ May be less bulky than the Bioness or walk-aide
- ▶ May be more difficult to put on if dexterity become a problem
- ▶ Consider skin issues since it fits like a sleeve?
 - ▶ Swelling?
 - ▶ Previous areas of break down?



L300 GO Video

- ▶ Ad:
 - ▶ https://youtu.be/82iErxLZS_k
- ▶ Walking with AFO v. L300 v. no device
 - ▶ <https://youtu.be/d-moder6dQA>



L300 Go Video/pics

► Without device:



• With AFO



L300 Go Video/pics

- ▶ With L300 Bioness



What happens when community ambulation is no longer feasible?

- ▶ **Community Ambulator:**
 - ▶ >300feet (walking with or without device through grocery store)
 - ▶ Gait speed: greater than 0.8m/s
- ▶ **Limited Community Ambulator**
 - ▶ <300ft (walking in the house, to / from mailbox)
 - ▶ Gait speed: between 0.8m/s and 0.4m/s
- ▶ **House Hold Ambulator**
 - ▶ ~50 feet (walking in house)
 - ▶ Gait speed: less than 0.4m/s

AFO's

▶ Xtern Turbomed

- ▶ AFO that fits on the outside of the shoe
- ▶ Ideal for mild-moderate foot drop with active individuals



▶ Graphite AFO

- ▶ AFO that is light weight and assist with dorsiflexion weakness

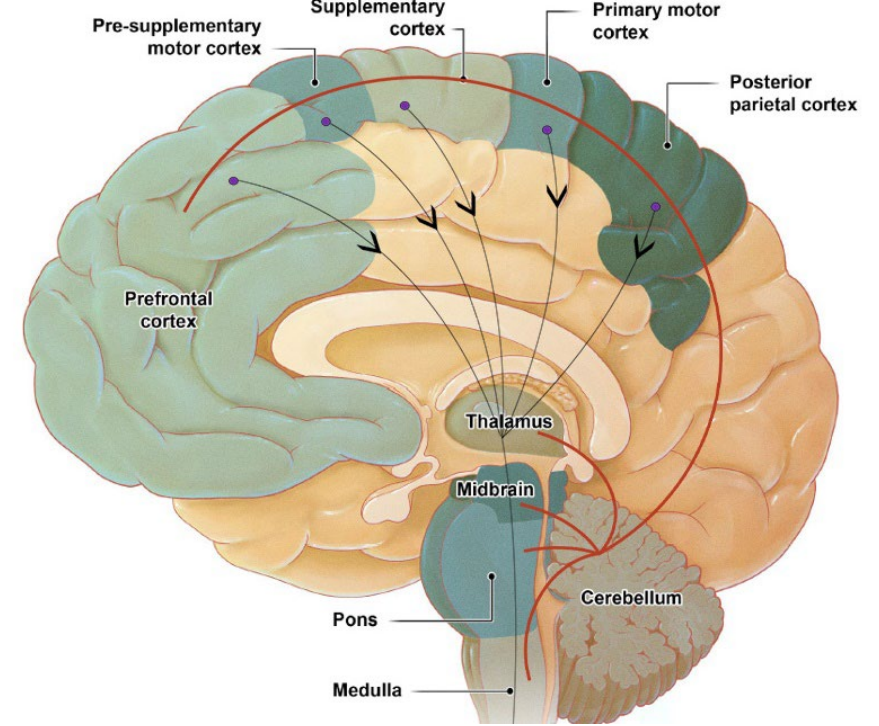
▶ Custom Plastic AFO

- ▶ Heavier, but controls ankle when there is little to no strength
- ▶ Meant for individuals with skin issues or need more control



Portable Neuromodulation Stimulator (PoNS)

- ▶ Home device used in conjunction with Physical Therapy to optimize gait in PwMS
- ▶ Orally applied therapy delivered by neurostimulation through a mouthpiece connected to a portable controller
- ▶ Stimulation triggers a flow of neural impulses to the brain structures that control gait.
- ▶ A clinical trial showed that in mild-moderate MS gait improved when combined with 14 weeks of physical therapy compared to control



Case Studies

The background of the slide is white with abstract green geometric shapes on the right side. These shapes include overlapping triangles and polygons in various shades of green, from light lime to dark forest green. A thin, light gray line also runs diagonally across the lower right portion of the slide.

Case Studies: GI Joe

▶ Brief Description:

- ▶ Occupation: 55yo Firefighter, medically retired after dx (6 yrs ago), now on social security disability. Uses rolling walker for mobility.
- ▶ ADL's: not driving second to vision issues, uses grocery delivery/uber.
- ▶ SocHx: Lives in condo with 10 STE since he was divorced. Lives with girlfriend. Not interested in moving.
- ▶ Medical: Tysabri infusion 1x/month
- ▶ Gait: significant deviations, heavy reliance on walker, gait speed: 0.01m/s

▶ Current complaints:

- ▶ Admitted to hospital after a flare up
- ▶ This is his 2nd flare up, he was issued Bioness in 2019, and used it until he started needing a manual wheelchair for long distances in 2020. Started using Wheelchair for all mobility, didn't leave home much
- ▶ Currently, cannot walk upstairs to his 2nd floor apartment, after short rehab stay was able to scoot up on his bottom. He does not wear his Bioness or plastic AFO consistently due to issues with programing it/turning it on. He has also developed tight gastroc/calves.
- ▶ Admitted because of a possible flare up vs. UTI. Needs to re consider his options for mobility. He would like to walk again and feels at his relatively young age he should be able to walk, but has failed to be compliant with previous therapies.

GI Joe

- ▶ Initial prescriptions:
 - ▶ AFO worked, but veteran not complaint
 - ▶ Prescribed Bioness, initially very effective, but not used frequently enough, pt developed plantar flexion contractures
- ▶ What next?
 - ▶ Powered mobility evaluation
 - ▶ Start with scooter/Companion attachment since living situation cannot change quickly
 - ▶ Consider powered wheelchair, discuss options for moving to a different home.
 - ▶ Accessibility apps for his phone
 - ▶ Enlarging text/apps
 - ▶ Utilizing text to speech accessibility functions

Case Studies: Nurse Hazel

▶ Brief Description:

- ▶ Occupation: 55 yo, female nurse in rural hospital, had relapse 1 year ago, just getting connected with the VA hospital.
- ▶ ADL's: Driving independently, uses cane when feeling tired/fatigue, working as nurse manager
- ▶ SocHx: Lives with husband and teenage children in single story home.
- ▶ Gait: moderate deviations, left foot drop, gait speed: 0.9m/s,

▶ Current Complaint:

- ▶ Left foot drop was noticed as “weakness” a few months ago, was given a plastic off the shelf brace.
- ▶ Still having trouble keeping up with her peers and family
- ▶ Doesn't always wear brace because it is **uncomfortable**.

Nurse Hazel

▶ Initial Prescription?

- ▶ Trial more active AFO? -graphite, Turbomed/Xtern
- ▶ Trial Bioness----AWESOME fit

▶ Consider rollator ?

- ▶ Although not something she'd use every day, can provide some energy conservation on bad MS days

▶ Her goal is to stay working

- ▶ Would not consider a scooter at this stage, but if her mobility was significantly reduced or other areas were affected, may consider it.



How do you Decide?!

- ▶ Find a local Assistive Technology Professional
- ▶ How does Fatigue play a factor?
 - ▶ 25 foot walk test or 5 Times Sit to stand test
 - ▶ Do this at beginning/end of a visit
- ▶ Work with a physical therapist/occupational therapist who has experience with the device
- ▶ ***Remember:***
 - ▶ ***Manual wheelchairs should not be considered “Exercise” for PwMS. These are tools for mobility.***

Helpful Links:

- ▶ Resource to identify funding sources for home modifications
 - ▶ <https://www.nationalmssociety.org/Living-Well-With-MS/Mobility-and-Accessibility/Increasing-Accessibility>
- ▶ Find a local Assistive Technology Professional
 - ▶ <https://www.atia.org/about-atia/membership-directory/>
- ▶ Funding Resources for assistive technology
 - ▶ <https://exploreat.net/>
- ▶ Voice Control and Scanning set up on Iphone/Ipad
 - ▶ <https://www.youtube.com/watch?v=Db9Xsw5Aa5w>
- ▶ Hands free access of Android Phone
 - ▶ <https://www.youtube.com/watch?v=GIDaz4Nm5lE>

Thanks to Meredith White head, PT, DPT, ATP and Jodie Haselkorn, MD, MPH for your help with this talk!

Your feedback is important to us!

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Survey

Please complete the webinar survey in the TRAIN or TMS websites within **15 days**. This will give you access to your CME/CE certificate.

Non-VA: www.vha.train.org

VA: www.tms.va.gov

What's On Your Mind?

Please type your question into the  Chat area in the lower right corner of your screen.



VA MS Centers of Excellence

- **Website:** www.va.gov/MS
- Remote clinical consults within VA
- VA specific MS care information
 - Benefits, grants, adaptive equipment, referrals
 - MS quality measures, MSSR, DMT use criteria
- Educational opportunities

Healthcare Professional

- Monthly clinical e-newsletter
- Monthly webinars
- Conference presentations
- Annual network meetings

Veteran

- Monthly podcast
- Quarterly e-newsletter
- Webinars in collaboration with non-VA MS and Veteran service organizations

National MS Society

- **Website:** www.nationalmssociety.org
- Professional Resource Center
 - Clinical publications
 - Literature search
- Support
 - MS Navigator
 - Self-help groups
 - MSFriends
- Educational Opportunities
 - Healthcare Professional**
 - Webinars (ECHO, VA, Pediatric, Mental Health)
 - National and local e-newsletters
 - Fellowships and mentoring
 - Patient**
 - Ask an MS Expert series
 - Virtual Programs (New to MS, Black MS Experience, Hispanic/Latinx Experience, & more)

**Thank you and please join us for the
next webinar on May 1, 2024!**

**Fostering Meaningful Interactions:
Importance of Motivational Interviewing
and Shared-Decision Making**

Léorah Freeman, MD, PhD

www.nationalMSSociety.org/currenttopics

www.va.gov/MS/products/CME_CEU_calls