

Multiple Sclerosis: Outpatient Neuro Case Review

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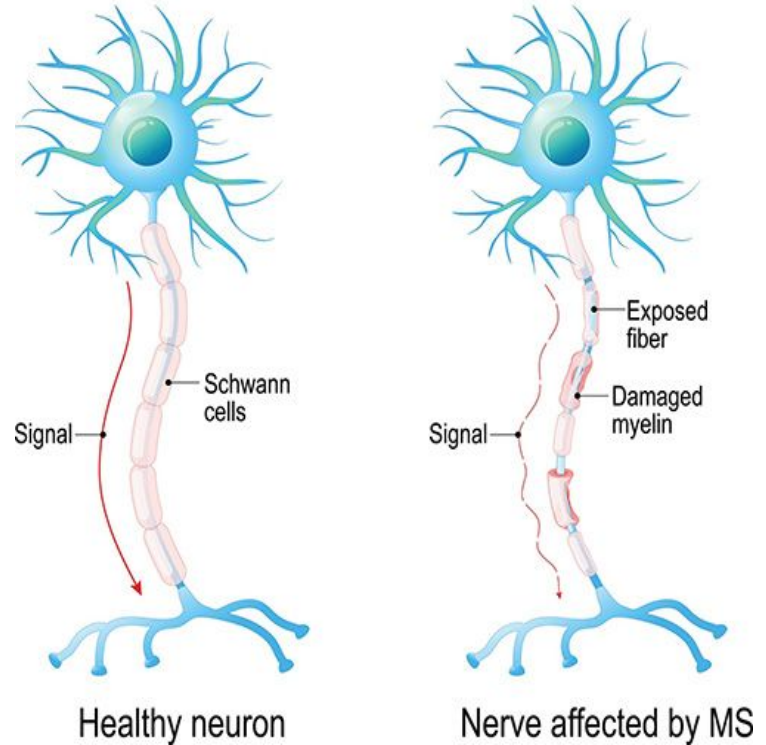
Case Information

- 55 year old woman with Primary Progressive Multiple Sclerosis (PPMS)
- Referred to physical therapy from her neurologist at Duke
- Diagnosed 4 years ago
- Referral for frequent falls and trouble with functional mobility
- EDSS: 5

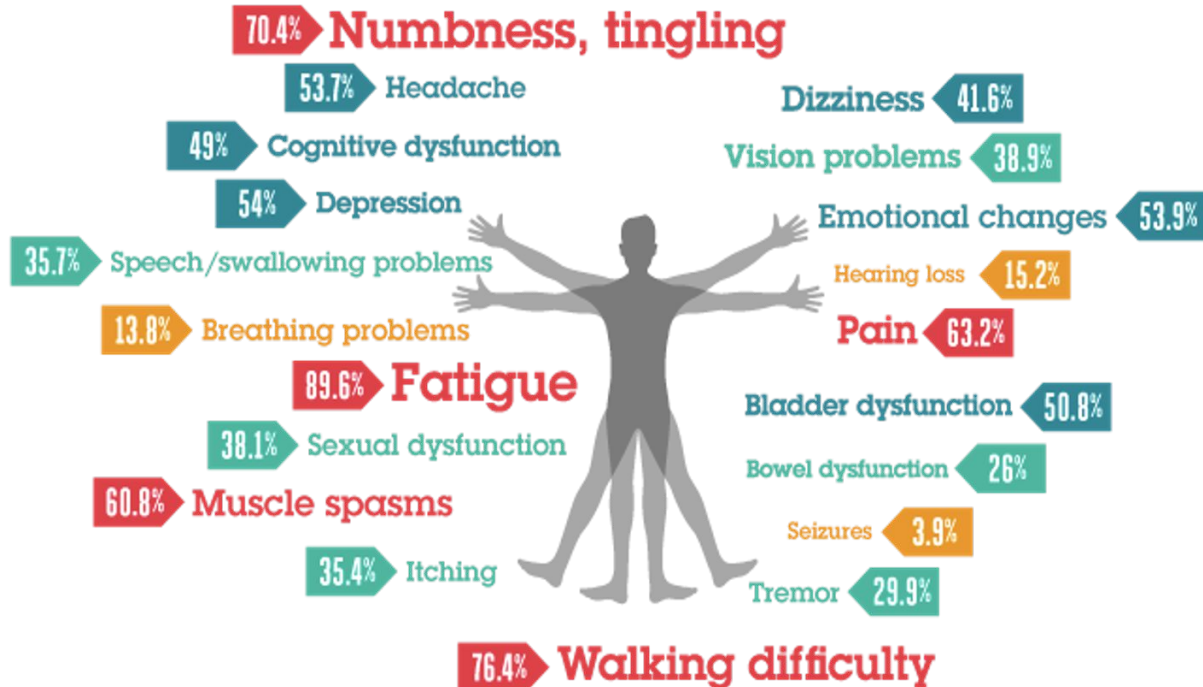
What is Multiple Sclerosis?

Pathophysiology of MS

MS: Immune-mediated disease that results in an attack on the central nervous system that specifically result in demyelination and damaged nerve fibers

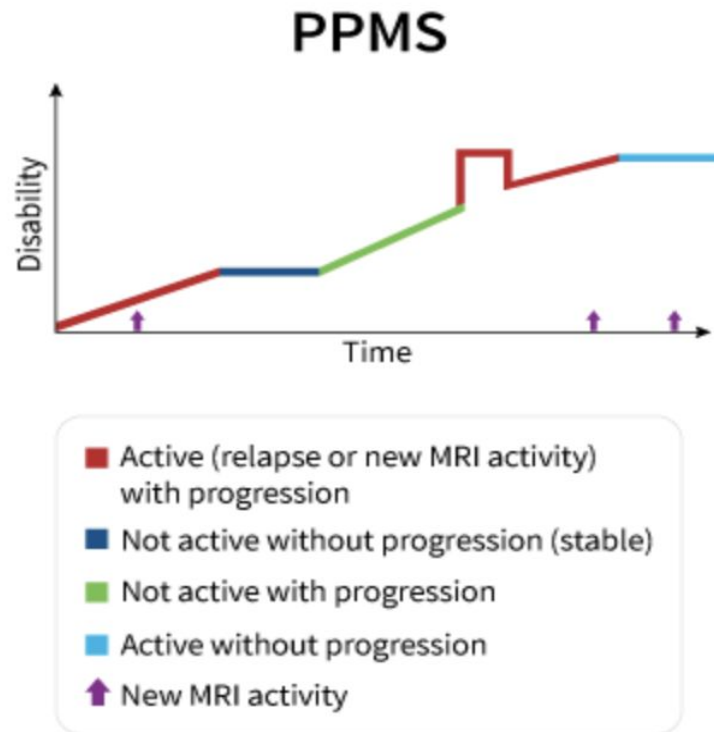


Common Symptoms of MS



Primary Progressive Multiple Sclerosis (PPMS)

- Experience gradually worsening neurologic symptoms and an accumulation of disability
- **Active:** an occasional relapse and/or evidence of new magnetic resonance imaging (MRI) activity over a specified period of time)
- **Not active:** with or without progression



Expanded Disability Status Scale (EDSS)



Subjective

General Subjective Questions for Neuro Patients

- Goals for PT
- Prior Functional Status
- Current Functional Status
- Home Setup/Accessibility/Surfaces/Stairs
- Independence with ADLs
- Family/Caregiver Ability and Willingness
- Typical Daily Activities
- Falls
- Red Flag Screening
- Equipment
- Recreational Activities
- Employment
- Previous PT Treatment
- Pain
- Transportation Ability

Subjective Questions Specific to People with MS

- Location of Lesions
- Type of MS
- Relapse History & Recent Relapses
- Specific Symptoms
- Current Symptom Management
- Disease Modifying Therapies (DMTs)
- Other Medications
- Connected to Neurologist, Nutritionist, Urologist, Pharmacist, PT, OT, Social Worker, etc.
- Modification of Activities
- Connected to MS Society

Subjective

- Goal is to walk without any assistive device
- Lives with husband in 2 story home, bedroom on 2nd floor, no STE
- Husband is unable to assist
- Has access to a gym, pool, and personal trainer
- Taking Ocrevus
- Feels like balance and fatigue are biggest “limiting factors”
- Drives independently
- Owns SPC and RW
- Uses SPC but is unstable during walking; refuses to use RW
- Takes frequent naps in the evenings due to fatigue
- Primary symptoms include LE weakness R > L, core weakness, numbness in R LE, fatigue, cognitive dysfunction, and bladder dysfunction

Objective

Objective Measures

- Vitals
- Cognition
- Vision
- Posture
- Integument: Skin Integrity and Edema
- Sensation
- Deep Tendon Reflexes
- Pathological Reflexes (Clonus)
- Strength
- Endurance
- ROM
- Coordination
- Spasticity
- Bed Mobility
- Sitting Balance (Static and Dynamic)
- Transfers
- Standing Balance (Static and Dynamic)
- Gait

Outcome Measures

Outcome Measures Highly Recommended by MS EDGE:

- 12-Item MS Walking Scale
- 6-Minute Walk Test
- Berg Balance Scale
- Dizziness Handicap Inventory
- MS Impact Scale (MSIS-29)
- MS Quality of Life (MS QoL-54)
- Timed 25 Foot Walk
- TUG Cognitive and Manual



Subject ID Number Subject Initials Date Questionnaire Completed Day Month Year

If you cannot walk at all, please tick this box

In the past two weeks, how much has your MS ...	Not at all	A little	Moderately	Quite a lot	Extremely
1. Limited your ability to walk?	1	2	3	4	5
2. Limited your ability to run?	1	2	3	4	5
3. Limited your ability to climb up and down stairs?	1	2	3	4	5
4. Made standing when doing things more difficult?	1	2	3	4	5
5. Limited your balance when standing or walking?	1	2	3	4	5
6. Limited how far you are able to walk?	1	2	3	4	5
7. Increased the effort needed for you to walk?	1	2	3	4	5
8. Made it necessary for you to use support when walking indoors (eg holding on to furniture, using a stick, etc.)?	1	2	3	4	5
9. Made it necessary for you to use support when walking outdoors (eg using a stick, a frame, etc.)?	1	2	3	4	5
10. Slowed down your walking?	1	2	3	4	5
11. Affected how smoothly you walk?	1	2	3	4	5
12. Made you concentrate on your walking?	1	2	3	4	5

From the numbers you circle against these questions, your healthcare professional can calculate your MSWS-12 score. This is done by adding the numbers you have circled, giving a total out of 60, and then transforming this to a scale with a range from 0 to 100. Higher scores indicate a greater impact on walking than lower scores.

To be completed by the healthcare professional

Total score _____ out of 60
Percentage _____ %

Impairments and Functional Status

- Mildly impaired memory, attention, and executive function
- Impaired sensation R LE (light touch and proprioception)
- Fatigue
- Decreased aerobic endurance
- ROM WFL
- SBA - Min A for bed mobility
- Requires UE support for sit <> stand transfer
- Impaired static and dynamic balance
- Falls Risk
- Gait: Mod Ind with SPC, decreased gait speed, decreased foot clearance on R LE, trendelenburg, R knee hyperextension during stance phase, intermittent LOB from catching foot

Objective Measures and Outcome Measures

- Strength:

	Right	Left
Hip Flexors	3-/5	4+/5
Hip Extensors	3/5	4/5
Hip Abductors	3-/5	4+/5
Knee Flexors	4/5	4+/5
Knee Extensors	4/5	5/5
Ankle DF	2+/5	4+/5
Ankle PF	4+/5	5/5

Interventions

**Can people with MS improve with
exercise??**

Patient Education/Interventions

What are 1-3 things to go home with after an initial evaluation?

- Energy Conservation
- HEP
- Cooling Techniques

Future Sessions:

- Strength
- Gait Training
- Balance
- Transfer training
- Bed mobility
- Interval training for endurance
- Equipment considerations

Additional Referrals

- Mental Health Professional
- Support Group
- Social Worker
- Urologist
- Nutritionist
- SLP
- MS Clinic

Resources

- Clinical Bulletin for PTs for MS
 - https://www.nationalmssociety.org/NationalMSSociety/media/MSNationalFiles/Brochures/Clinical_Bulletin_Physical-Therapy-in-MS-Rehabilitation.pdf
- National MS Society
 - <https://www.nationalmssociety.org/>
- Exercise and lifestyle physical activity recommendations for people with MS throughout the disease course
 - <https://journals.sagepub.com/doi/pdf/10.1177/1352458520915629>
- MS Edge Task Force
 - <https://www.neuropt.org/practice-resources/neurology-section-outcome-measures-recommendations/multiple-sclerosis>

Questions?

References

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