

# Gait Training, Strength Training, and Pain Management of a 26 Year Old Female Recovering From a Multiple Sclerosis Exacerbation: A Case Report

## BACKGROUND

- Multiple Sclerosis (MS) is an autoimmune disorder where it is thought that the body attacks the myelin sheath covering nerve fibers and disrupts communication in the central nervous system.
- Presentations are varied with symptoms ranging from loss of vision, poor balance and coordination, tremors, fatigue, pain, and problems with memory and concentration.
- MS is classified into four types in order of severity: relapsing-remitting, secondary-progressive, primary-progressive, and progressive-relapsing<sup>1</sup>.
- Evidence links stressful events to increased risk for exacerbations<sup>2</sup>.
- Treatment of MS can be variable due to the multiple presentations and progressions of disease.
- Currently little information is available regarding the most effective physical therapy interventions for an acute MS exacerbation under stressful conditions.



## PURPOSE

- The purpose of this case report was to document the multidisciplinary rehabilitation of an individual who suffered a severe MS exacerbation after a series of stressful life events.

## CASE DESCRIPTION

- The patient was a single, 26 year old female with a five year history of relapsing-remitting MS, who was seen for 12 weeks in a skilled nursing facility.
- The patient presented to the emergency room with an inability to ambulate and loss of all independent function and self-care activities.
- The patient was previously independent in all activities of daily living and ambulated without an assistive device
- Prior to episode of care the patient had been living in a stressful/unsupportive environment along with her seven year-old daughter.
- The patient did not have a strong social structure and lacked familial support.
- The patient was motivated to return to her previous level of function and ambulate again.

## EXAMINATION

<b>Cardiopulmonary</b>	• Not impaired
<b>Musculoskeletal</b>	• Upper extremity: grossly 2+/5 MMT • Lower extremity: grossly 2+/5 MMT • Kyphotic posture • Complaints of pain in hips, lower extremities
<b>Neuromuscular</b>	• Spasticity in all four limbs • Postural tremor
<b>Integumentary</b>	• Not impaired
<b>Cognition</b>	• Impaired: 21/30 on MiniMental State Exam

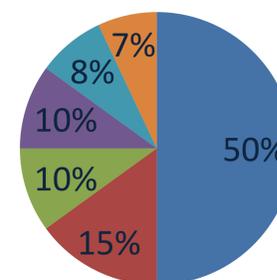
## INTERVENTIONS

Weeks 1-3	Weeks 4-6	Weeks 7-9	Weeks 10-12
<ul style="list-style-type: none"> <li>Bed Mobility</li> <li>Head Control</li> <li>Straight leg raise</li> <li>Ankle pumps</li> <li>Heel slides</li> <li>Omnicycle</li> <li>Weight shifts in parallel bars</li> </ul>	<ul style="list-style-type: none"> <li>Transfer training</li> <li>Quadruped activities</li> <li>Bridging</li> <li>Gait training with front wheeled walker</li> <li>Postural control in sitting and standing</li> <li>Stretching/tissue therapy for muscular pain</li> </ul>	<ul style="list-style-type: none"> <li>Balance on physio ball</li> <li>Bending activities</li> <li>Thera band strengthening exercises</li> <li>Stair training</li> <li>Tandem walking</li> <li>Balance reactions</li> <li>Stretching for muscular pain</li> </ul>	<ul style="list-style-type: none"> <li>Car transfers</li> <li>Fall recovery techniques</li> <li>Strengthening exercises with weights</li> <li>Gait training outdoors/alterations in terrain</li> <li>Curb negotiation</li> <li>Patient education on fatigue</li> <li>Postural control</li> </ul>



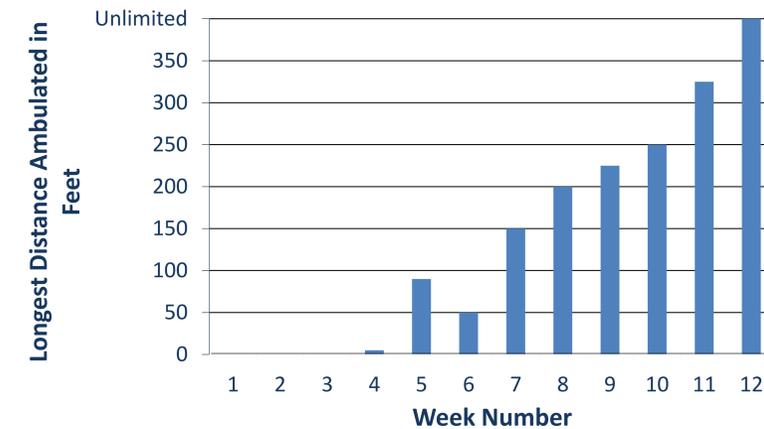
## TIME BREAKDOWN OF INTERVENTIONS

- Gait Training
- Balance Activities
- Patient Education
- Transfers
- Pain Management
- Strengthening Exercises



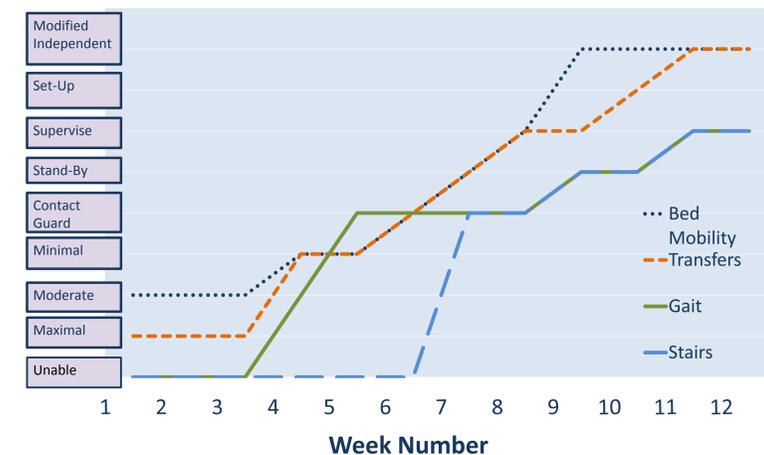
## OUTCOMES

### AMBULATION PROGRESSION



### Assist Level

### FUNCTIONAL GAINS



## DISCUSSION

- The patient made significant gains in strength, balance, functional activities, and gait, however she still needed a front-wheeled walker for ambulation.
- A considerable obstacle to recovery was spasticity and pain which continued to impair the patient's progress.
- Lack of social support and unknown future living arrangements was stressful for the patient and often was associated with increases in her tremors and pain.
- Future research should focus on the most effective physical therapy interventions for persons rehabbing from MS exacerbations who are also challenged with unstable support systems and uncertain futures.

### REFERENCES/ACKNOWLEDGEMENTS

1. National Multiple Sclerosis Society. Multiple Sclerosis FAQs. <http://www.nationalmssociety.org/>. Accessed September 25, 2015.  
2. Artemiadis AK, Anagnostouli MC, Alexopoulos EC. Stress as a risk factor for multiple sclerosis onset or relapse: a systematic review. *Neuroepidemiology*. 2011;36(2):109-20.  
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