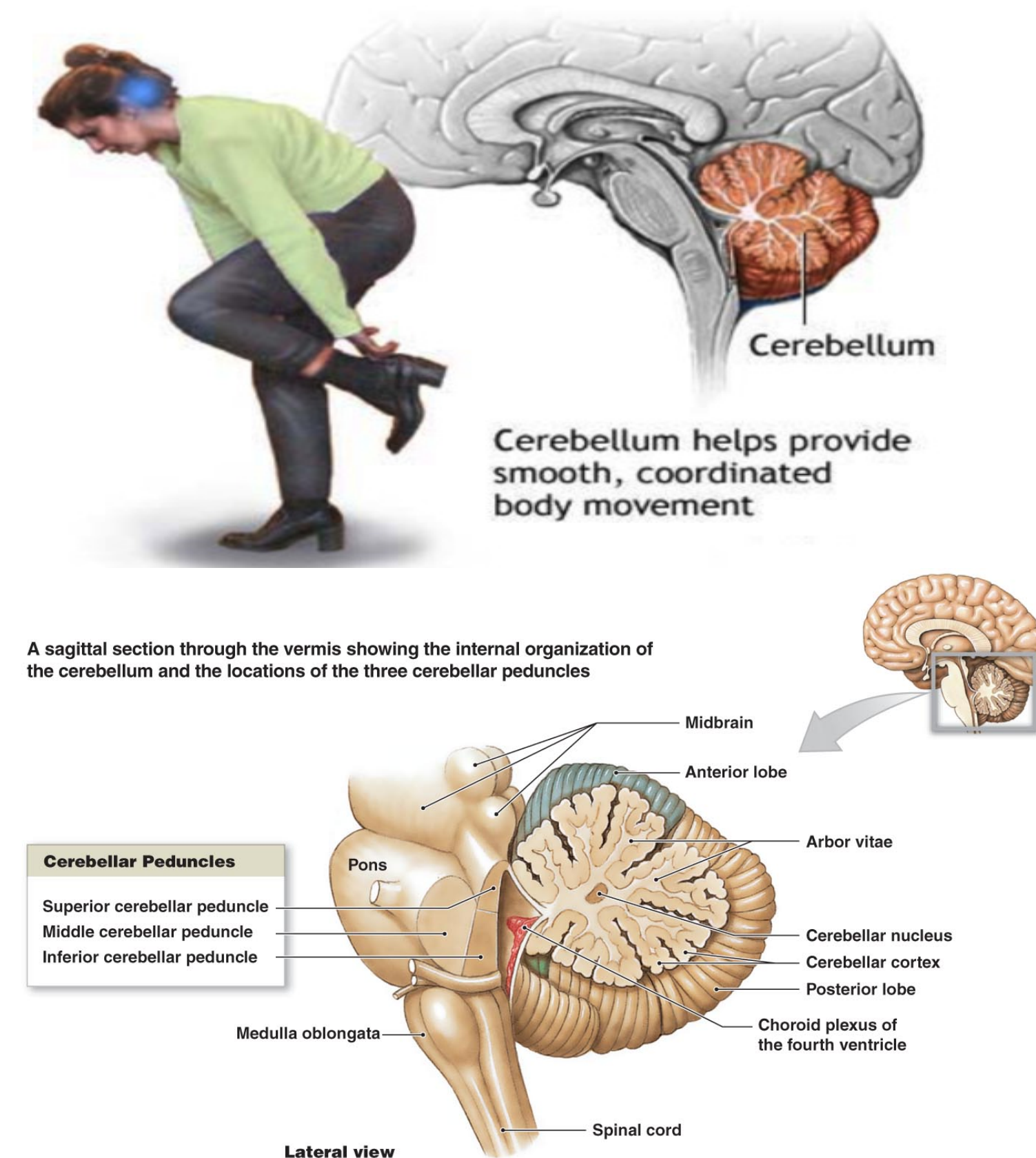


# Multimodal Physical Therapy Interventions Designed to Restore Independence and Motor Control in a Patient with Acute Cerebellar Stroke

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## Background

- The cerebellum integrates sensory perception, coordination, and motor control



- Cerebellar stroke accounts for 3.4% of the 600,000 strokes that occur annually in the United States
- Due to the rarity of ACS, very little research has been conducted regarding multimodal PT interventions as a treatment option

## Purpose

- The purpose of this case report was to describe multimodal PT interventions designed to restore independence and motor control for a patient with ACS.

## Case Description

- 61-year-old female after an acute cerebellar stroke
- Onset of reduced balance and mobility
- PMH: Meniere's syndrome, seizures, Right vestibular nerve section, lupus
- Previously Independent with ADL's/IADL's
- Cardinal Signs: headache, dizziness, ataxia, inaccurate, erratic or uncoordinated movements

## Examination

Examination Measure	Admission	Discharge
Gross LE Strength	4/5	4+/5
Gross Trunk Strength	2/5	4/5
Motor Function	Delayed; increased time processing task	Functional
Coordination	UE/LE impairment	UE/LE unimpaired
Proprioception	Inconsistent responses or slowed response time	Consistent responses, but slowed response time
Bed mobility	Supervision	Independent
Transfers	Minimal Assistance	Independent
Gait	25' with FWW, Moderate Assistance	1,150' with Rollator, Modified Independent

### Impairments

- ↓ Muscle Performance
- ↓ Motor Function
- ↓ Coordination & Balance
- ↓ Sensory Integrity
- ↓ Proprioception

### Activity Limitations

- ↓ Independent bed mobility/transfers
- Inability to ambulate w/o AD and assistance
- ADL's & IADL's

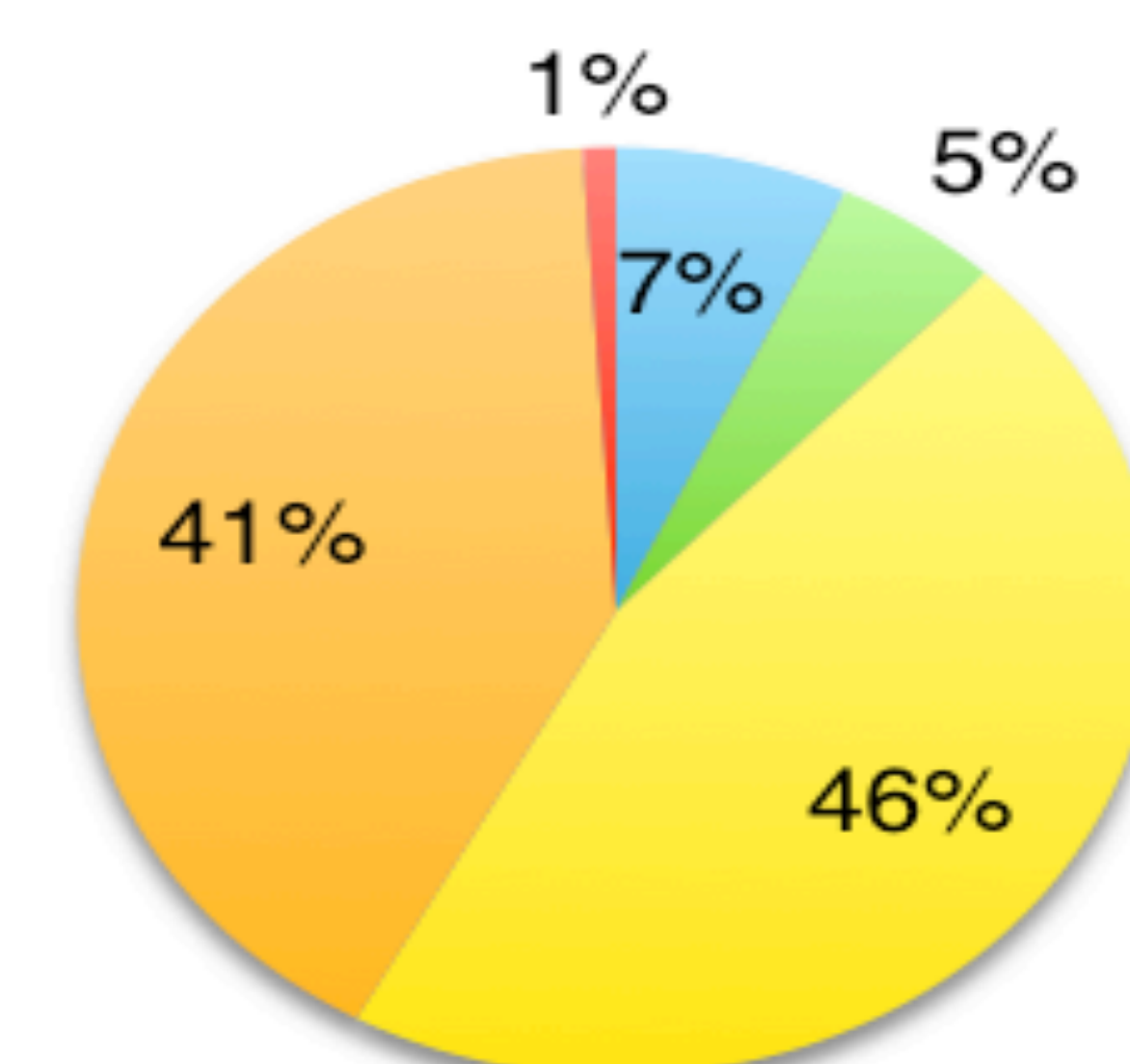
### Participation Restrictions

- Inability to drive or participate in volunteer work

## Interventions

### Time Allocated to Interventions Over the Course of 8-Weeks

- Therapeutic Exercise
- Neuromuscular Re-education
- Group Therapy
- Therapeutic Activity
- Gait Training

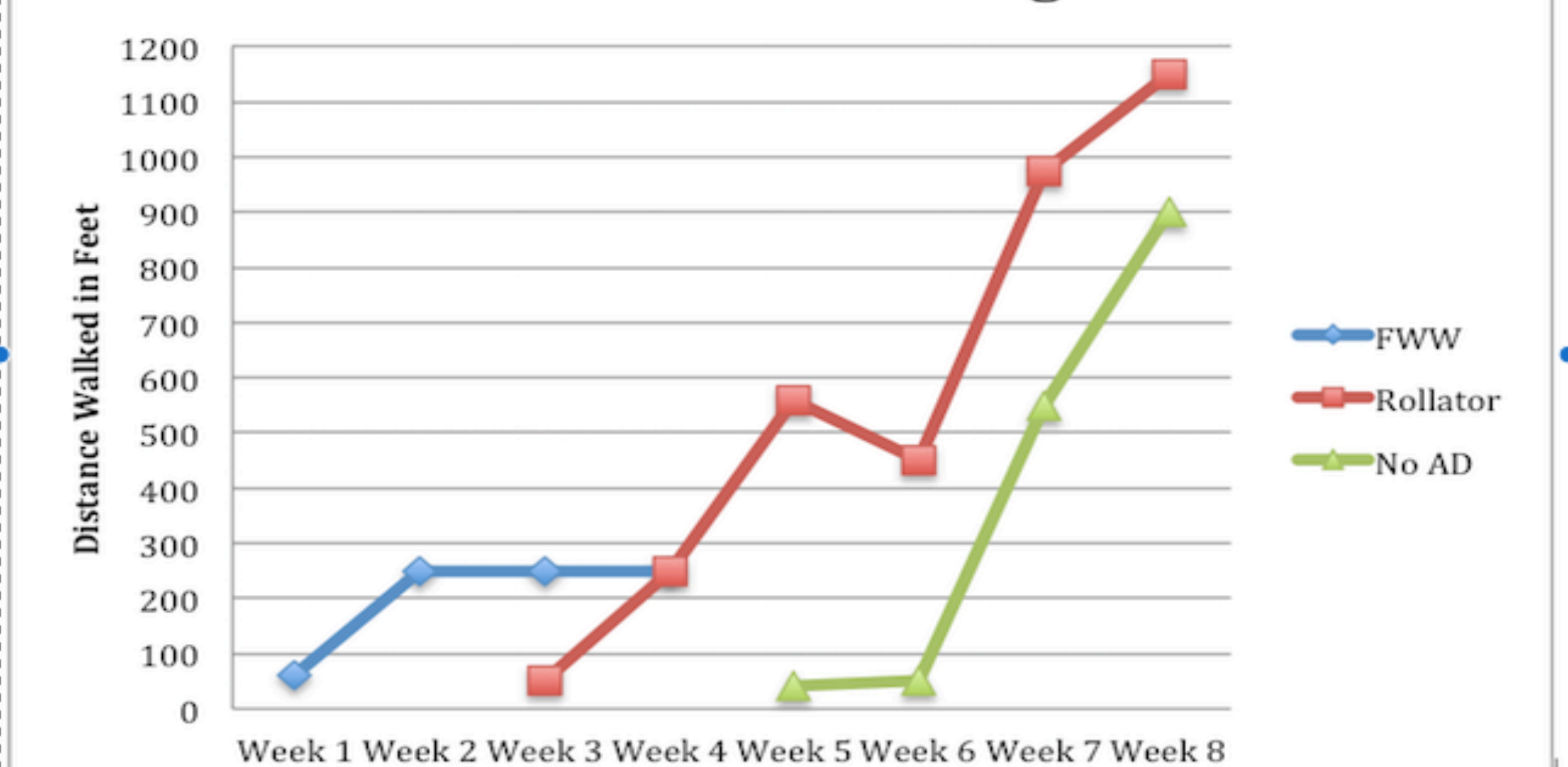


## Outcomes

- Significant improvements in motor control and truncal stability were noted. Maximum distance and quality of gait improved as well as level of independence in functional mobility.

	Initial	Discharge	Interpretation
Berg Balance Scale	6/56	40/56	*Higher score denotes less functional impairment
Activities Specific Balance Confidence Scale	7.5/100%	63/100%	*Higher score denotes less functional impairment
Dizziness Handicap Inventory	72/100	38/100	*Lower score denotes less functional impairment
Five Times Sit to Stand	1min 31sec	15.1sec	*Lower score denotes less functional impairment
Ambulation Distance Balance	60' Min A	1,150' Mod I	
	Poor; unable to maintain without assistance or support	Good; able to maintain and accept moderate challenges without assistance or support	

### Ambulation Distance Progression



## Discussion

- Limited research exists on treatment of a patient with ACS in regards to using a multimodal intervention technique.
- The outcomes from this case report indicated that the incorporation of multimodal interventions was an effective treatment option in restoring independence and motor control following ACS.
- Future research investigating the efficacy of specific interventions for ACS is warranted.