

# Use of a Task-Oriented Approach in the Physical Therapy Management of a Patient Following a Posterior Inferior Cerebellar Artery Stroke: A Case Report

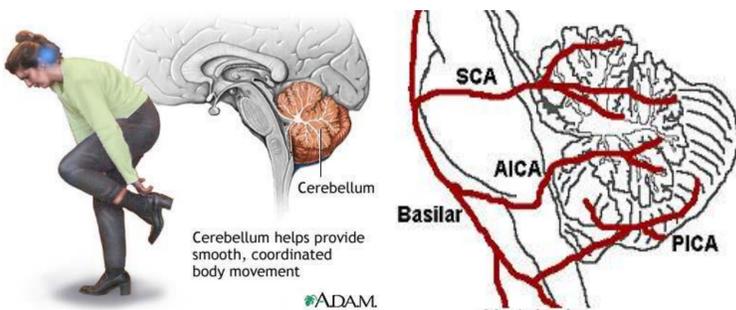
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## Background

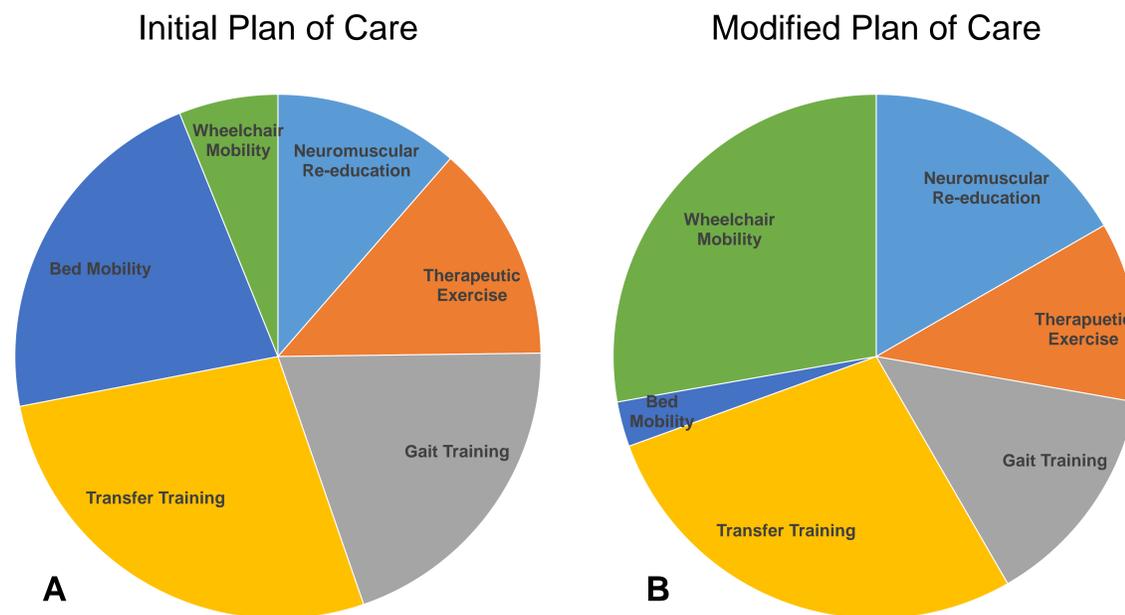
- 3.4% of the 600,000 strokes that occur annually in the United States are cerebellar strokes.<sup>1</sup>
- Despite the rarity of cerebellar strokes, their impact can cause severe acute neurological morbidity.<sup>2</sup>
- The posterior inferior cerebellar artery (PICA) supplies the inferior portion of the cerebellum.<sup>3</sup>
- PICA infarct can lead to deficits in:
  - Gait and postural stability
  - Coordination
  - Cognition and attention
- The task-oriented approach has been demonstrated as an effective intervention for patients with cerebrovascular accidents, but limited research has been done on its use in patients with cerebellar stroke.



Left picture: <http://corticalchavivism.com/2013/03/14/key-players-in-autism-ii-the-cerebellum/>  
Right picture: [https://en.wikipedia.org/wiki/Posterior\\_inferior\\_cerebellar\\_artery](https://en.wikipedia.org/wiki/Posterior_inferior_cerebellar_artery)

## Interventions

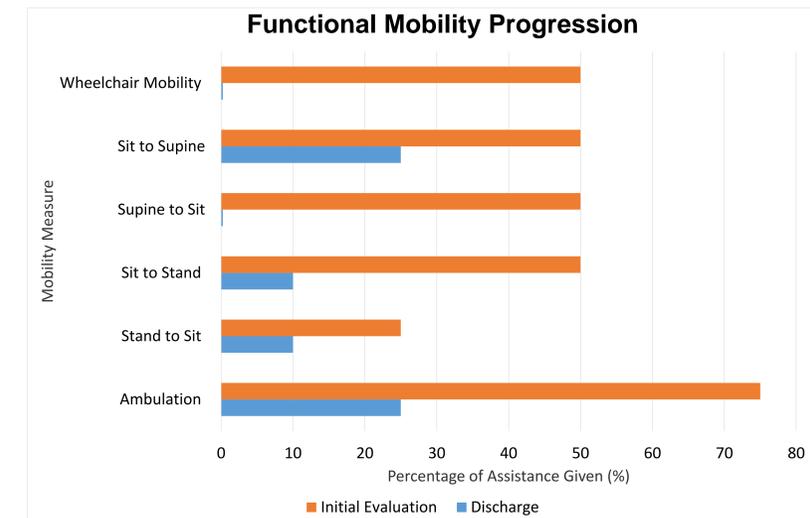
Interventions were performed using a multidimensional approach, with an emphasis on task-oriented rehabilitation. Interventions were progressed over time, including more complex neuromuscular re-education activities, increased ambulation distances, and decreased assistance.



The frequency of the interventions performed across the sessions in the initial plan of care (A), and the modified plan of care (B) after the patient had a second stroke.

## Outcomes

The patient showed improvements in all categories by the end of the treatment period. However, due to complications from a subsequent stroke, the interdisciplinary team recommended discharge to a skilled nursing facility for continued rehabilitation.



In comparison to the initial evaluation, the patient required less assistance in all categories of functional mobility by discharge. The largest improvement (greatest difference in assistance required) was in ambulation, wheelchair mobility, and supine to sit. For wheelchair mobility and supine to sit, the patient required no assistance at time of discharge.

## Purpose

To provide an overview of the physical therapy management in the acute inpatient rehabilitation setting for a patient following a PICA stroke, with the use of a task-oriented approach

## Case Description and Examination

- 78-year-old female
- Right PICA stroke
- Received daily physical therapy over four and a half weeks in the acute rehabilitation setting
- Prior to admission, she was completely independent.
- During week three of her episode of care, she was diagnosed with a second stroke.

Tests and Measures	Results
Manual Muscle Testing	Right LE= 4/5, Left LE = 4-5
Coordination: Heel to Shin	Right = Slow and inaccurate, Left = Slow but accurate
Sensation: Discriminative Touch	Right UE/LE = Normal, Left UE/LE = Diminished
Functional Balance Grades	Static Sitting = Fair, leans to the right Static Standing = Poor Dynamic Sitting/Standing = Not tested due to safety
Gait Analysis	Moderate assist x 2 with rolling walker, max verbal cues, ataxic gait, scissoring pattern, unsteady and uncontrolled foot placement, heavy reliance on walker, trouble initiating gait
Communication	Dysarthria, word finding difficulties, difficulty following basic commands and holding conversation



Image A shows the patient mid-ambulation with no visual cues. She demonstrated an ataxic gait pattern, including scissoring of her lower extremities. Image B shows the patient ambulating with visual cues. Parallel lines of blue tape were applied to the floor and the patient was encouraged to place her feet on the lines during ambulation. This improved her foot placement and decreased the scissoring of her lower extremities.

Outcome Measures	Admission	Discharge
Berg Balance Scale	5/56 = high fall risk	13/56 = high fall risk
Functional Independence Measure (FIM)	Total FIM score = 44 (18 lowest possible – 126 highest possible) Total FIM level = 2.44 (Maximal assistance)	Total FIM score = 72 (18 lowest possible – 126 highest possible) Total FIM level = 4 (Minimal assistance)

## Discussion

Physical therapists within the acute rehabilitation setting commonly utilize the task-oriented approach for patients with cerebral stroke. A similar intervention approach for this patient with a cerebellar stroke appears to have been beneficial. The patient had improved functional mobility at the time of discharge, despite having a second stroke. This may warrant future studies on this intervention method.

## Acknowledgements

Special thanks to Rachel Emery, DPT, for supervision and assistance with photo footage, Amy Litterini, PT, DPT for assistance with case report conceptualization, and the patient for participation in the case report.

References:  
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