

# Non-Pharmacological Management of Orthostatic Hypotension in Ischemic Stroke Patients in Inpatient Rehabilitation

Laura Steakin, Anthony Manfredo, Christine Wang, Demelio A. Urbano, Alexis Huesgen, Amy Voiland, Ilana Tuchman, Mackenzie Weber, Dorothy Wortham

ABBEL Research Division, Rehabilitation Institute at Sinai, Sinai Hospital of Baltimore, Baltimore, MD

## Introduction

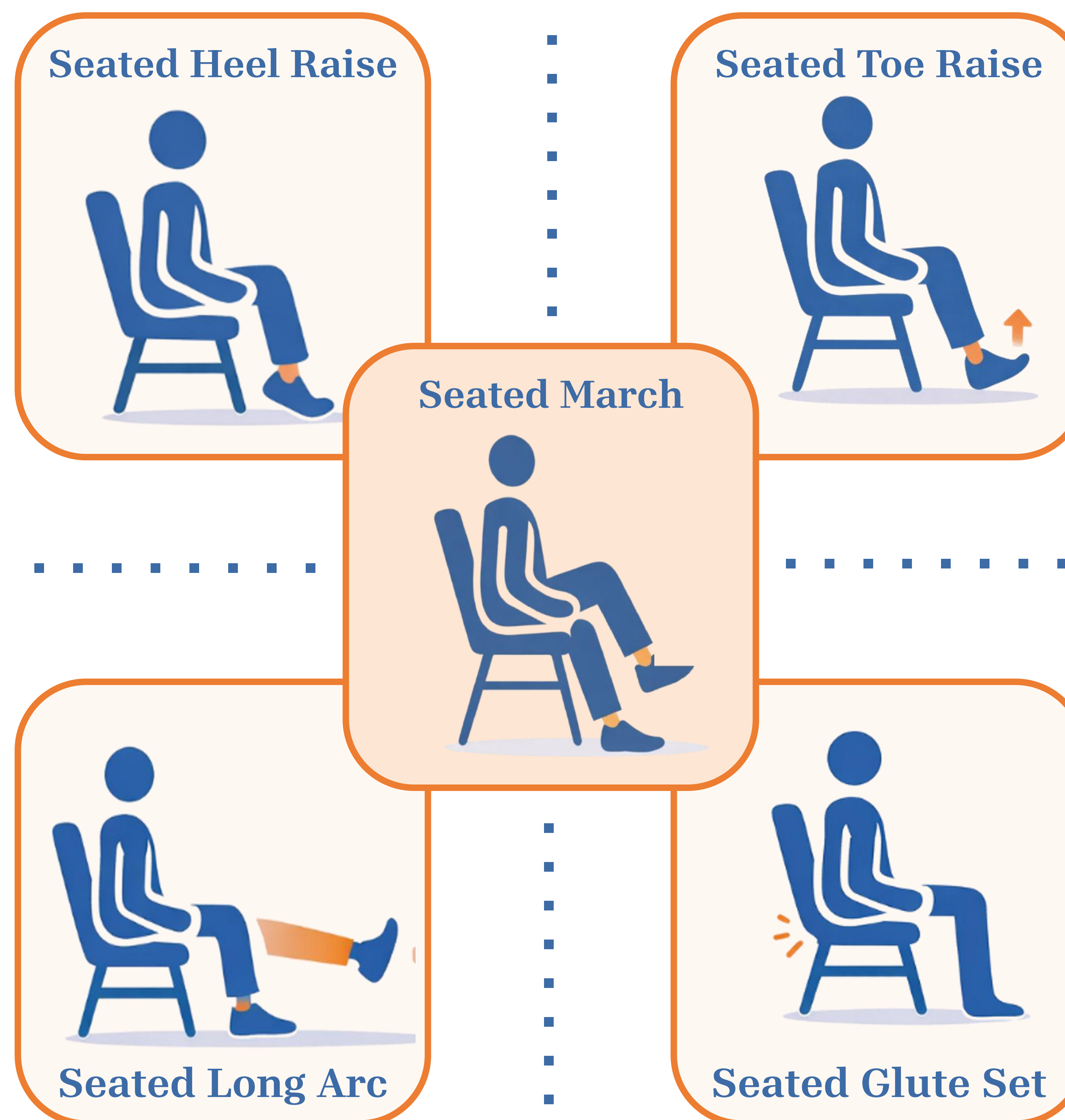
- **Orthostatic Hypotension (OH):** Positional drop in blood pressure (SBP  $\geq$  20 or DBP  $\geq$  10) with sitting or standing in addition to being symptomatic<sup>1</sup>
- **Problem:** OH can reduce therapy tolerance, prolong hospital stay, and delay recovery
- **Development:** recent research published on non-pharmacological interventions for OH management<sup>1-15</sup>
  - Mixed results on effectiveness of interventions
  - No clear guidelines on recommended interventions



## Protocol (cont.)

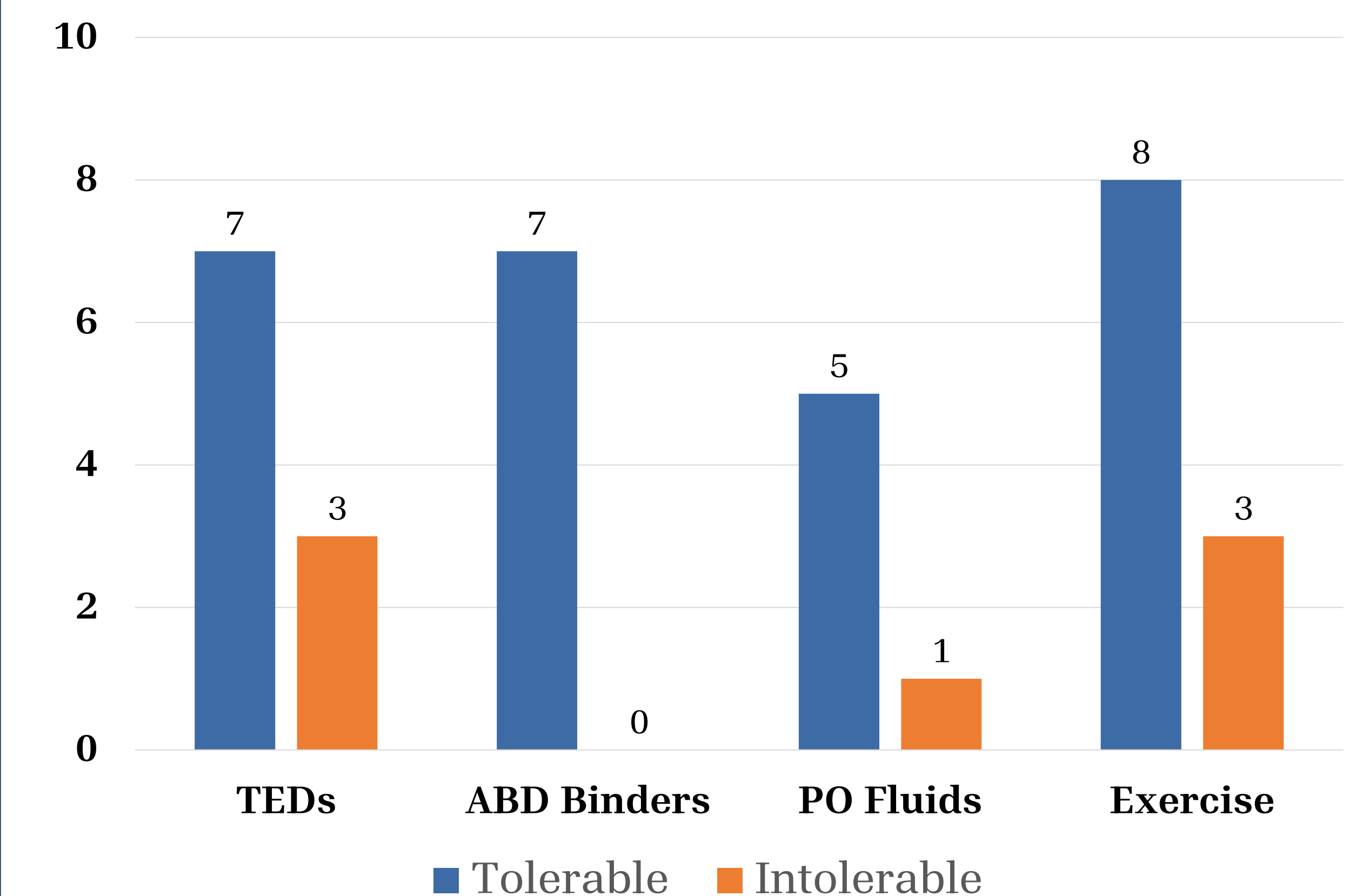


**Figure 1.** Word cloud display representing the most common symptoms in ischemic stroke patients with orthostatic hypotension, with larger font indicating more people impacted



**Figure 2.** Non-pharmacological exercise protocol used in patient sample with orthostatic hypotension

## Results



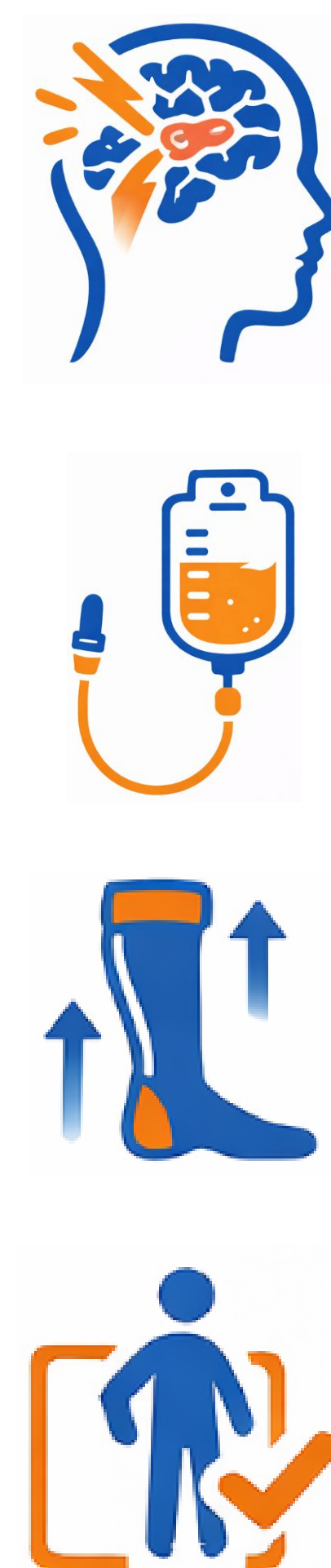
**Figure 3.** Activity tolerance following non-pharmacological interventions for orthostatic hypotension

## Primary Aim

A multidisciplinary team (nurses, physicians, and therapists) developed a protocol for managing OH with non-pharmacological interventions in patients recovering from ischemic stroke in inpatient rehab.

## Protocol

- **Inclusion Criteria<sup>16</sup>:**
  - Acute ischemic stroke patients
  - Patients seen from 03/2024 to 03/2025
- **Exclusion Criteria:**
  - Diet limiting PO fluid intake (thickened liquids, tube feeds or NPO)
  - Lower extremity amputees
  - Currently on dialysis
  - Pre-existing OH treated with medication
- **Interventions:**
  - Compression: TEDs, ABD binders
  - PO Bolus: 480 mL water over 5 minutes
  - Exercise protocol detailed in Figure 2
- **Outcomes Tracked:**
  - Toleration of standing activity
  - Toleration of seated activity



## Primary Conclusion

This protocol was effective for managing OH in patients with ischemic stroke, contributing to a reduction in missed therapy sessions and improved participation in rehabilitation.

## Discussion

- This quality improvement project established a protocol that provides a standardized and timely intervention for orthostatic hypotension (OH)
- Findings show that non-pharmacological interventions can support stabilization of OH that otherwise may limit activity tolerance
- It can be inferred that improving activity tolerance thus reduces patient fall risk and improves safety
- Future large-scale studies could be conducted using the protocol, along the entire continuum of care



REFERENCES