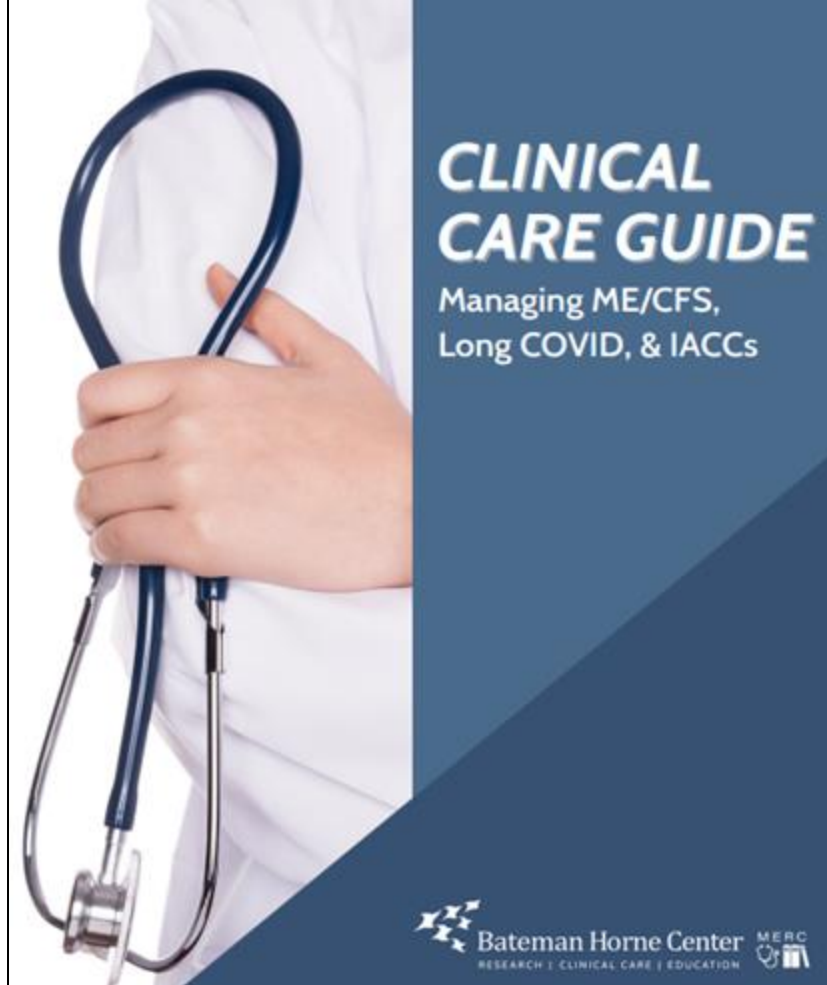


Orthostatic Intolerance & Dysautonomia Assessment

Clayton Powers, DPT
Director of Education - Bateman Horne Center

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- BHC and its presenters do not receive any personal financial compensation, incentives, or commercial support related to these studies.
- No specific products, medications, or investigational agents from these trials will be promoted or endorsed during today's presentation.
- Any treatments or tools referenced are for educational purposes only and should not be interpreted as commercial endorsement.



CHAPTER 7: ORTHOSTATIC INTOLERANCE (OI) & DYSAUTONOMIA



Introduction

Orthostatic Intolerance (OI) is a hallmark feature of dysautonomia, a condition of autonomic nervous system dysfunction that is prevalent in ME/CFS, Long COVID, and other infection-associated chronic conditions (IACCs). OI is characterized by an inability to maintain adequate blood flow and cerebral perfusion while upright, leading to dizziness, lightheadedness, cognitive impairment, fatigue, and worsening symptoms upon standing.^{11,133,174}

OI is not a standalone issue but rather a symptom manifestation of broader dysautonomia—a dysfunction in autonomic regulation that also affects heart rate, blood pressure, digestion, immune function, temperature regulation, and pain processing. Addressing OI is a critical component of managing dysautonomia, **but clinicians must also recognize that dysautonomia is both a contributor to, and a consequence of, other comorbidities such as mast cell activation syndrome (MCAS), neuroinflammation, viral reactivation, sleep dysregulation, and small fiber polyneuropathy.**^{43,134}

7.1 Assessment of OI and Dysautonomia

Clinical Presentation

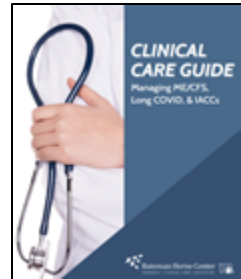
- Dizziness, lightheadedness, or near-syncope upon standing^{106,160}
- Cognitive impairment or “brain fog”^{5,11,174}
- Fatigue exacerbated by being upright^{11,134}
- Heart palpitations or tachycardia^{106,112}
- Cold hands/feet, excessive sweating, or temperature dysregulation^{134,136}
- Shortness of breath or chest discomfort¹⁰⁶
- Sensory sensitivities^{10,72}
- Tremors
- Sleep disruption, vivid dreams^{14,25}
- Emotional lability, anxiety
- Nausea, bloating, or delayed gastric emptying (GI dysmotility)^{11,127}

Diagnostic Testing

- **10-Minute NASA Lean Test** (passive standing test) or an **Active Stand Test** (in-office screening tool for OI, useful for diagnosis and monitoring effectiveness of interventions.)^{18,112,174}
- **Tilt Table Test (TTT)** (gold standard diagnostic test, used when necessary to differentiate between POTS, OH, or NMH.)^{133,160}
- **Ambulatory blood pressure and heart rate monitoring** (useful for detecting fluctuations associated with dysautonomia.)^{106,136}

Dysautonomia

- **Dysfunction of the autonomic nervous system**
- **Prevalent in ME/CFS, Long COVID, and other infection-associated chronic conditions**
- **Affects heart rate, blood pressure, digestion, immune function, temperature regulation, and pain processing**

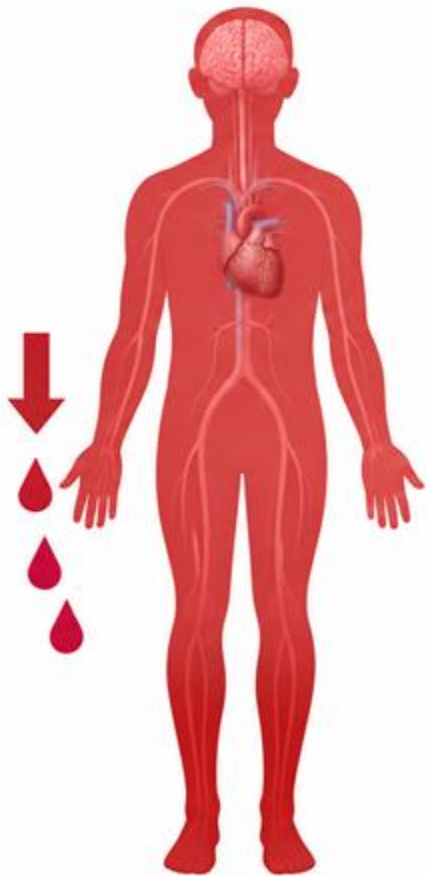


Orthostatic Intolerance

- **Hallmark feature of dysautonomia**
- **Inability to maintain adequate blood flow while upright**
- **Leading to dizziness, lightheadedness, cognitive impairment, fatigue, and worsening symptoms upon standing**

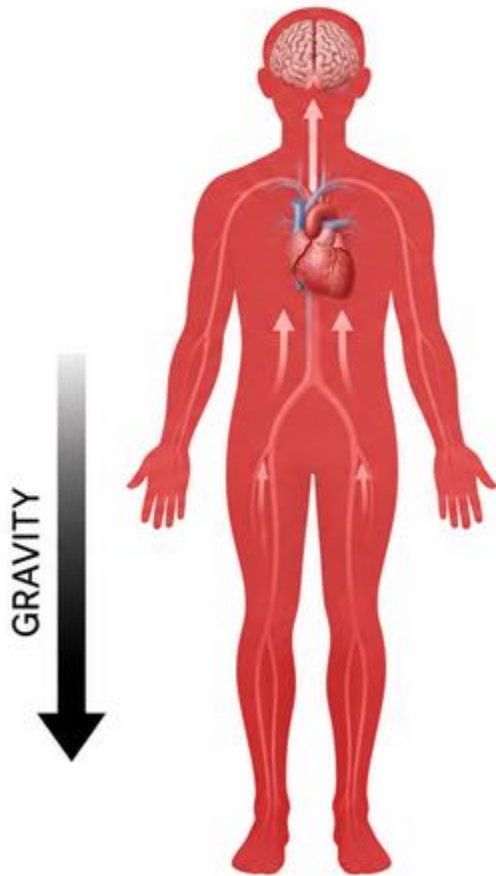
1. STAND UP

Gravity pulls blood downward



2. NORMAL RESPONSE

Body adjusts to keep blood flowing to brain



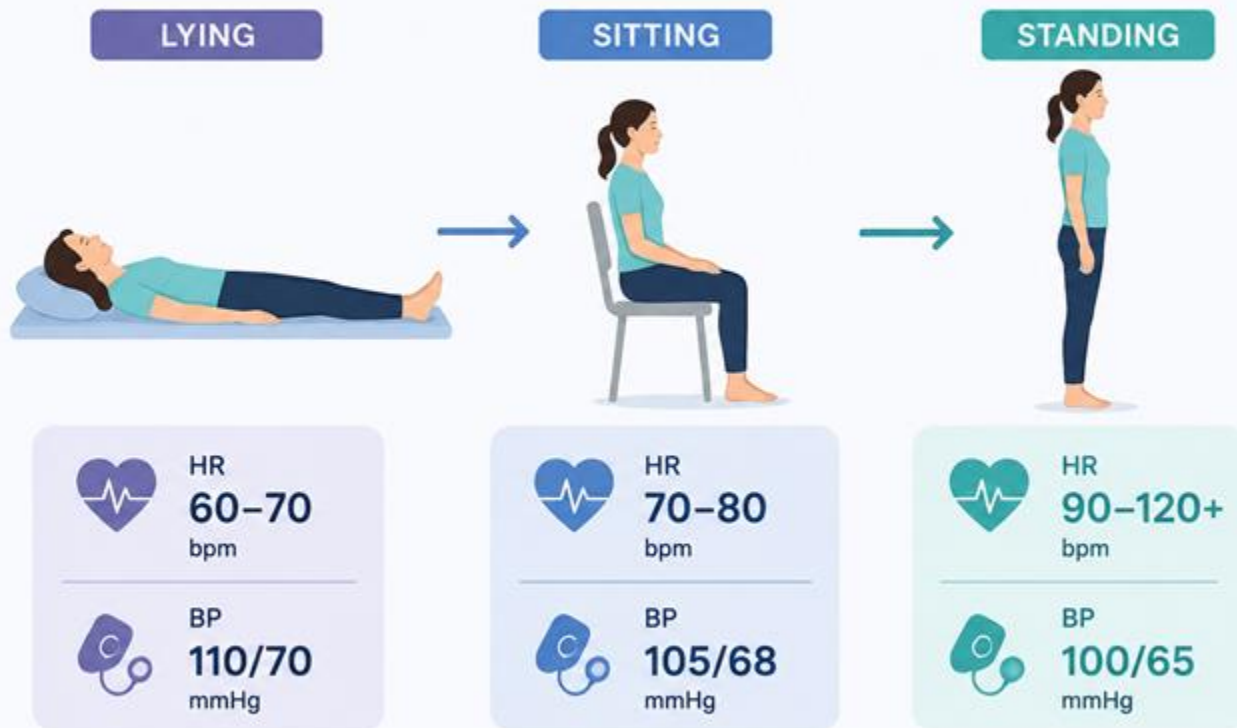
3. FAILURE TO ADJUST

Reduced blood flow causes symptoms



What Happens When We Stand?

Changes in Heart Rate (HR) and Blood Pressure (BP)



When you stand, blood shifts toward your legs.



Your heart rate usually increases and blood pressure may change.



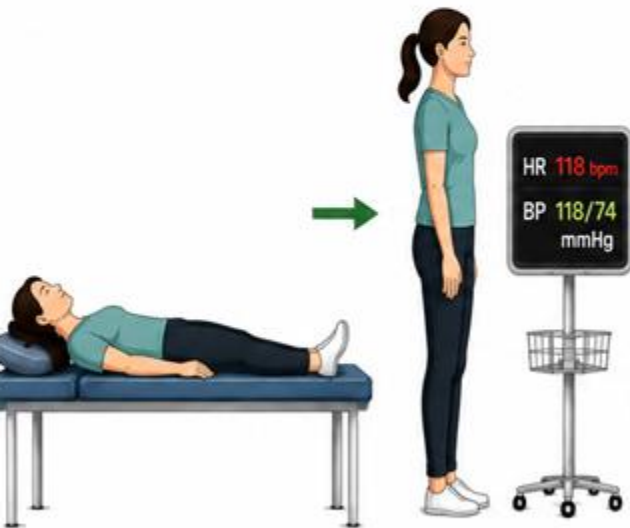
These changes help keep blood flowing to your brain.



Everyone's numbers are a little different. These are typical ranges for healthy adults.

Assessing Orthostatic Intolerance

ACTIVE STAND TEST



PASSIVE STAND TEST (NASA LEAN TEST)



TILT TABLE TEST



CEREBRAL BLOOD FLOW



429 patients with ME/CFS
vs 44 Healthy Controls



30-minute head-up
tilt table test (70°)



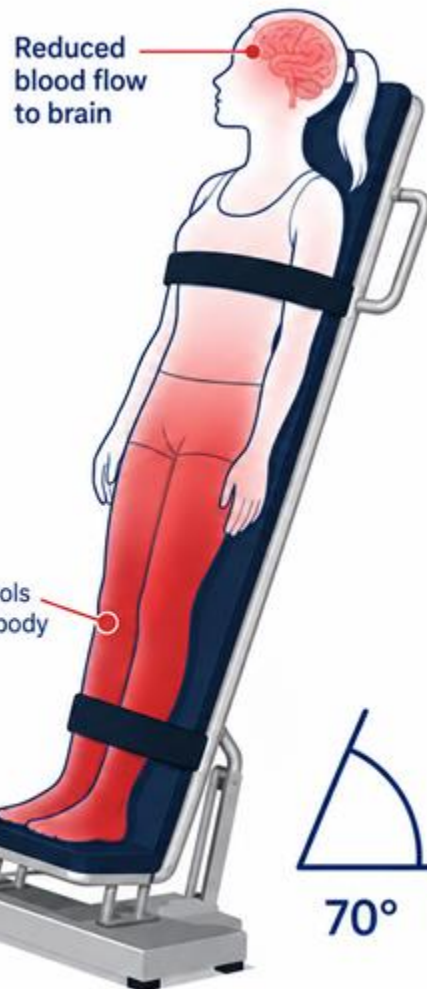
Doppler flow imaging
of internal carotid and
vertebral arteries



24–29% reduction
in cerebral blood flow in ME/CFS



About 50% had
normal HR/BP



CEREBRAL BLOOD FLOW



100 patients with ME/CFS
vs
15 Healthy Controls



1 hour of sitting



Doppler flow imaging
of internal carotid and
vertebral arteries



24.5% reduction in ME/CFS
0.4% reduction in healthy

ME/CFS



24.5%
reduction in
cerebral blood flow

Healthy Controls



0.4%
reduction in
cerebral blood flow