



# Postural orthostatic tachycardia syndrome (POTS)

Postural orthostatic tachycardia syndrome, or POTS, is a heterogeneous dysautonomia which leads to the ultimate clinical picture of POTS symptoms. Predominant and pathognomonic feature is chronic orthostatic intolerance, which is any symptom that is present when one is standing and improves when in a recumbent position.

POTS is not rare, just not well known. There is a strong female predominance (5-to-1 female to male ratio). It's estimated to affect one in 100 teenagers, and one to three million people in the U.S. alone (which includes adults).

## Symptoms of POTS:

- Dizziness or light-headedness
- Heart palpitations/tachycardia
- Shaking and sweating
- Weakness and fatigue
- Fainting
- Shortness of breath
- Chest pain
- Headaches
- Gastrointestinal upset
- Exercise intolerance/fatigue

Often patients with POTS report experiencing nearly all of the listed symptoms.

### How to do orthostatic measurements in office:

- Have patient lay in supine position for 10 minutes.
- Take heart rate and blood pressure while patient is lying down at or after the 10 minute mark.
- Have patient stand up and repeat heart rate and blood pressure at 1, 5 and 10 minutes of standing.
  - Do not let patient sit or lie down between measurements unless they are near syncopal.
- Document symptoms that patient reports in standing position.

### Diagnosing POTS:

1. Orthostatic heart rate increase.
  - a. In individuals  $\leq 18$  years of age: Heart rate increase by  $\geq 40$  bpm upon standing.
  - b. In individuals  $\geq 19$  years of age: Heart rate increase by  $\geq 30$  bpm upon standing.
2. Absence of orthostatic hypotension – systolic blood pressure cannot drop by  $> 20$  mmHg.
3. Reproduction of symptoms reflecting sympathetic activation.
4. History of chronic orthostatic intolerance ( $> 6$  months of symptoms).
5. Absence of other conditions provoking sinus tachycardia.

**\*Note: Symptoms alone DO NOT make the diagnosis of POTS**

### Initial treatment:

- Hyper-hydration with goal intake of 100 ounces of non-caffeinated, non-carbonated fluid daily.
- Increase sodium intake with a goal of 4-6 grams daily. Examples include pickles, salted popcorn, peanut butter crackers and electrolyte supplementation in water.
- Recumbent exercise such as recumbent bike, rowing or swimming.
- Get up slowly.
- Avoid hot showers/saunas/hot tubs, etc.
- May wear compression garments to help with blood pooling.
- May try elevating the head of the bed to decrease angle in change of position.

It's important to rule out electrical and structural cardiac abnormalities by completing a full cardiac workup prior to attributing symptoms to dysautonomia. Although there is currently no cure for dysautonomia, most patients experience improvement in symptoms with lifestyle-based treatments including increased fluid intake, increased salt intake, a structured exercise plan, stress-management plan, good sleep habits and adequate nutrition. Medications, such as beta-blockers, Midodrine and Florinef, may be used off label for some patients, but are rarely helpful without non-pharmacological interventions. Even when using all treatments available, some dysautonomia patients may experience persistent symptoms that affect their quality of life.

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