

## **Postural Orthostatic Tachycardia Syndrome (POTS)**

### **What is POTS?**

Postural orthostatic tachycardia syndrome, also known as “POTS,” is a disorder that can make a child or adolescent feel dizzy or faint, particularly when they stand up from sitting down or lying down for a long time or even if they are standing in one position for a long time. POTS is a disorder of the autonomic nervous system that results in an inability to tolerate positional changes such as going from sitting or lying down to standing. Symptoms may disrupt how the child is feeling on a daily basis, but POTS does not place the child’s or adolescent’s life in danger.

### **What causes POTS?**

Currently, we do not know what causes POTS. Some children develop symptoms after an infection or injury.

### **Common symptoms of POTS**

- Tachycardia
- Lightheadedness/presyncope (almost passing out; vision becomes tunneled or goes gray or dark)
- Dizziness or feeling like you are going to fall
- Passing out/syncope (presyncope is much more common than syncope)
- Fatigue
- Early fatigue with exercise
- Brain fog and/or difficulty concentrating at school/home
- Chest pain
- Muscle/joint pain
- Nausea/vomiting
- Redness or purple coloring in the lower legs

### **How is POTS diagnosed?**

The diagnosis can be suggested by a careful history, physical exam and the vital signs assessment. Blood pressure and heart rate can be obtained in different positions like lying down, sitting up, and standing. Depending on the signs and symptoms identified, other tests may be done to evaluate the cardiac, nervous and gastrointestinal (GI) systems.

### **What can be done for children with POTS?**

Most POTS symptoms can be treated with behavior and lifestyle modification, but sodium supplements and medication may be needed in some cases (Cutitta, et al. Pacing Clin Electrophysiol. 2019;42:283–286). Possible treatments include:

- Maintaining good hydration and salt intake.
- Wearing compression stockings.
- Getting sufficient sleep (hours and quality).
- Gradual increase in exercise (move limbs to increase venous return and get up slowly, making sure the patient is in safe surroundings in case of dizziness, sitting or lying down promptly if feeling dizzy, teaching caretakers how to support the patient if he or she feels unwell).
- Cognitive behavioral therapy (CBT) with a psychologist or counselor.
- Referral to Dr. Erik Armitano, a neurologist with Neurological Associates Clinic in Kirkland who specializes in the POTS community (<https://www.neuroassociates.us/index.html>).

**Children and adolescents with signs of POTS are not seen by Seattle Children's Rheumatology.** PCPs are welcome to refer them for services in other specialty clinics at Seattle Children's as deemed clinically required:

- **Psychiatry and Behavioral Medicine** (for children with POTS who have mental health/mood concerns) - <https://www.seattlechildrens.org/clinics/psychiatry-and-behavioral-medicine/refer-a-patient/>.
  - **Or refer the family to the Washington State Mental Health Referral Service for Children and Teens** for help finding mental health services - <https://www.seattlechildrens.org/healthcare-professionals/access-services/partnership-access-line/washingtons-mental-health-referral-service-children-teens/>
- **Physical Therapy** - <https://www.seattlechildrens.org/clinics/physical-therapy/>
- **Dietitian** - <https://www.seattlechildrens.org/clinics/nutrition/>

**For more information:**

- <https://rarediseases.info.nih.gov/diseases/9597/postural-orthostatic-tachycardia-syndrome>
- <https://www.mayoclinic.org/medical-professionals/endocrinology/news/postural-orthostatic-tachycardia-syndrome-and-chronic-fatigue-in-adolescents/mac-20430815>

**Patient handouts:**

- <https://kidshealth.org/en/parents/pots.html>
- <https://www.pccoforegon.com/overview-of-pots-syndrome/>
- <https://childrensnational.org/visit/conditions-and-treatments/brain--nervous-system/dysautonomia-and-pots>

**Red Flags**

Concerning symptoms for conditions beyond typical POTS that may require additional consultation:

- Joint swelling or stiffness (evidence of arthritis)
- Abnormal laboratory values, including cytopenias

- Evidence of true Raynaud phenomenon – evidence of triphasic color change or ulceration
- Consider consultation with a psychiatrist if there is concern for a significant mood or mental health disorder associated with presenting symptoms
- Consider consultation with cardiology if there is recurrent syncope, syncope with exercise or palpitations out of the expected range with syncope