

Care Gram

Postural Orthostatic Tachycardia Syndrome (POTS)

What Is Postural Orthostatic Tachycardia Syndrome (POTS)?

Postural Orthostatic Tachycardia Syndrome (POTS) is a condition that causes the heart to beat faster than normal when standing up. The increased heart rate can cause you to experience several symptoms, such as dizziness, fainting, and exhaustion.

POTS is not life-threatening; however, it can interfere with daily living. In most cases, changes in diet, medications, and physical activity can ease symptoms and improve the quality of life for those with POTS.

What Does POTS Mean?

Each word of Postural Orthostatic Tachycardia Syndrome has a specific meaning:

- Postural – related to the position of your body
- Orthostatic – related to standing upright
- Tachycardia – a heart rate over 100 beats per minute
- Syndrome – a group of symptoms that happen together

Who Does POTS Affect?

POTS is more common in women than men and generally develops between the ages of 15 and 50 years. You are at a higher risk of developing POTS if you have experienced the following:

- Significant illnesses, such as mononucleosis, or serious infections
- Pregnancy
- Physical trauma, such as a head injury
- Surgery
- Certain autoimmune conditions, such as Sjogren's syndrome, lupus, and celiac disease.

What Causes POTS?

Although the exact cause of POTS has not been determined, researchers believe multiple issues could lead to the condition, such as:

- Neuropathic POTS – occurs when loss of nerve supply (peripheral denervation) leads to poor blood vessel muscles, especially in the legs and abdomen.
- Hyperadrenergic POTS – occurs when the sympathetic nervous system (flight or fight response) is overactive.
- Hypovolemic POTS – occurs when the person has low blood volume. Low blood volume symptoms may also overlap with neuropathic and hyperadrenergic POTS.



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People with POTS also tend to pool a larger amount of blood in the vessels below their heart when they stand. Evidence also suggests that POTS might be an autoimmune disease, meaning your immune system attacks healthy tissue for unknown reasons.

Why Does POTS Cause Your Heart to Beat Faster?

When we stand, gravity pulls more blood into the lower half of the body causing less blood to reach the heart and brain. To compensate for this decrease in blood to the heart and brain, the body activates several nervous system responses such as releasing the hormones epinephrine and norepinephrine that help tighten blood vessels and cause a modest increase in heart rate leading to better blood flow to the heart and brain. Once the brain receives enough blood and oxygen, these nervous system responses settle back to normal.

In people with POTS, the blood vessels do not respond efficiently to the signal to tighten. As a result, the longer you are upright, the more blood pools in the lower half of your body. This leads to not getting enough blood returning to the brain, which can be felt as lightheadedness (faintness), brain fog, and fatigue. As the nervous system continues to release epinephrine and norepinephrine to tighten the blood vessels, the heart rate increases further. This may cause shakiness, forceful or skipped heartbeats, and chest pain.

What Are the Symptoms of POTS?

POTS symptoms can develop suddenly or gradually. Symptoms include:

- Dizziness or lightheadedness, especially when standing up, during prolonged standing in one position, or on long walks
- Fainting or near-fainting
- Forgetfulness and trouble focusing (brain fog)
- Heart palpitations or racing heart rate
- Exhaustion or fatigue
- Feeling nervous or anxious
- Shakiness and excessive sweating
- Shortness of breath
- Chest pain
- Headaches
- Feeling sick
- Bloating
- A pale face and hands and feet that turn purple if lower than the level of your heart
- Disrupted sleep from chest pain, racing heart rate, and excessive sweating during sleep

POTS symptoms often get worse in the following situations:

- Being in warm environments, such as a hot bath or shower and a hot day
- Standing frequently
- Participating in strenuous exercise
- When sick
- Menstruation (having your period)

How Is POTS Diagnosed?

- Your healthcare provider will ask questions about your symptoms, medications, and medical history. They will also perform a physical examination.

- Your healthcare provider may perform a tilt table test to measure your heart rate and blood pressure as you change posture and position.
- Your healthcare provider may also order other tests to help confirm or rule out POTS such as:
 - Blood and urine tests
 - QSART (a test that measures the autonomic nerves that control sweating)
 - Autonomic breathing test that measures your blood rate and pressure response during exercise
 - TST (tuberculin skin test)
 - Skin nerve biopsy
 - Echocardiogram
 - Blood volume with hemodynamic studies

What Is the Treatment for POTS?

There is no cure for POTS; however, your healthcare provider will help you develop a plan to manage your symptoms. The main forms of treatment include:

- Exercise and physical activity
- Diet and nutrition

Medical compression stockings may also help push blood from your legs to reduce POTS symptoms.

Exercise and Physical Activity

Talk with your healthcare provider before starting an exercise program. They can recommend the appropriate exercises for you and provide specific instructions. The following is basic information that may help ease POTS symptoms.

- Reclined aerobic exercise, such as swimming, rowing, and recumbent bicycling has the best results.
- Strengthening your core and leg muscles can be helpful.
- Practice isometric exercises that squeeze your muscles without actually moving your body and push blood back toward your heart.
 - Isometrics are simple exercises that you can do while lying in bed or seated.
 - Consider performing a few isometric exercises while in bed before getting up to prepare your body for sitting and standing.
- Transition slowly with your body from lying to sitting on the edge of your bed.
 - Stay on the edge of the bed for several minutes to allow your body to adjust to the change in position.
 - After standing, pause and wait before walking to allow your blood pressure to adjust.
 - If you feel lightheaded at any point, stay in that position for a few minutes to see if it resolves. If not, return to your prior position.
 - Moving slowly is the key.
- Start a modest walking program.
 - Count how many steps you can do without causing symptoms and to set a baseline.
 - Start with walking once a day gradually adding time, distance, or steps.
 - When you feel ready, add a second walk to your day.
 - Try taking 100 to 300 steps per hour during the day. Fitness trackers can help you monitor your steps.
 - Every week or so, add more steps to your daily total.
- Practice basic yoga with a focus on breathing to help reduce symptoms.

Diet and Nutrition

Managing diet and nutrition can help reduce POTS symptoms. A nutritionist or dietitian can assist you with creating a diet plan. General guidelines include:

- Increase sodium from 3,000 mg to 10,000 mg per day.
- Drink 2 to 2.5 liters per day of fluids – water is best.
- Eat small and frequent meals instead of a few large meals.
- Eat a diet that includes high fiber and complex carbohydrates to help reduce blood glucose (sugar) spikes and ease POTS symptoms.
- Eat balanced diet that includes protein, vegetables, dairy, and fruits.
- Choose more nutritious salty snacks such as broth, pickles, olives, sardines, anchovies, and nuts instead of chips and crackers.
- Plan and use a list while grocery shopping to help you make healthy food choices.

Other Ways to Manage POTS

- Your healthcare provider may prescribe certain medications, including fludrocortisone, pyridostigmine, midodrine, or beta-blockers.
- Medical compression stockings can help push blood from the legs toward your heart to reduce symptoms.
- Monitoring your pulse and blood pressure can help your healthcare provider make necessary adjustments to your treatment.
 - Check your blood pressure and pulse at the same time in the morning and after dinner.
 - Check your blood pressure and pulse when you are sick.
 - Blood pressure monitors are available at most drug stores, online, or at medical supply stores.
- Prioritize sleep. POTS can disrupt your sleep. The following guidelines may help you improve your sleep quality:
 - Raise the head of your bed 6 to 10 inches. The entire bed should be at an angle. This will increase the fluid volume in your circulation in the morning and help you wake up more easily.
 - Make sure the room temperature is neither too cold nor too hot.
 - Maintain a consistent sleep schedule.
 - Avoid excessive napping during the day.
 - Avoid excessive television, phone, or computer usage, especially while in bed.

Ways to Reduce Flare-ups

- Maintain a consistent temperature and avoid extremes, especially heat as it can worsen symptoms.
 - Air conditioning, cooling vest, handheld misters, personal fans, and dressing in layers can help if temperatures fluctuate.
 - Use lukewarm water when showering and a shower chair if necessary.
 - Avoid standing for long periods of time. If you must stand for a long time, try flexing and squeezing your feet and muscles or shifting your weight from one foot to the other.
 - Avoid alcohol. Alcohol causes dehydration that can worsen symptoms.