TWO ROOTS

POTS

Support Guide

Postural Orthostatic Tachycardia Syndrome

A comprehensive guide to understanding, managing, and finding support for POTS in Canada

Prepared by Natalie Pepin | Herbalist and Homeopath | Two Roots | tworoots.ca

1 — What is POTS: Understanding the Mechanism

POTS affects an estimated 390,000 Canadians and yet takes an average of two to twelve years to diagnose. Understanding what is happening in the body makes the management strategies in this guide — and why they work — far more comprehensible.

The autonomic nervous system

The autonomic nervous system (ANS) manages all of the body's automatic functions — heart rate, blood pressure, digestion, temperature regulation, breathing rate, and many others — without conscious effort. It operates through two branches: the sympathetic nervous system (fight-or-flight) and the parasympathetic nervous system (rest-and-digest). In a healthy body these two branches work in balance, constantly adjusting to the body's changing needs.

POTS is a form of dysautonomia — a disorder of this autonomic regulation. Specifically, it is a disorder of the body's ability to regulate heart rate and blood volume in response to changes in posture, particularly moving from lying or sitting to standing.

What happens when you stand up

When a healthy person stands, approximately 500-800ml of blood shifts toward the lower body due to gravity. The autonomic nervous system responds immediately: blood vessels in the legs constrict to prevent blood pooling, heart rate increases slightly, and blood pressure is maintained. The whole adjustment takes seconds and is imperceptible.

In POTS, this compensation fails. Blood pools in the lower body and is not efficiently returned to the heart and brain. The heart responds by racing — a compensatory attempt to maintain cardiac output. Heart rate increases of 30 beats per minute or more within ten minutes of standing (or 40 bpm in those under 19) is the diagnostic benchmark. The brain and other organs receive insufficient blood flow, producing the constellation of symptoms that makes POTS so disabling.

Three subtypes — different mechanisms, overlapping symptoms

The Canadian Cardiovascular Society and other leading bodies recognize three primary subtypes of POTS, each with a somewhat different underlying mechanism. Many people with POTS have features of more than one subtype.

Neuropathic POTS

Caused by partial autonomic neuropathy affecting the lower extremities, pelvis, and splanchnic circulation. Small nerve fibre damage impairs blood vessel constriction on standing, leading to blood pooling. Most common subtype. Compression garments, midodrine, and exercise training are particularly effective.

Hypovolemic POTS

Characterized by low blood volume — the total amount of fluid in the circulation is insufficient. The body cannot maintain adequate cardiac output on standing because there is less blood to work with. Increased salt and fluid intake, and sometimes fludrocortisone, are central to management.

Hyperadrenergic POTS

Characterized by elevated norepinephrine (adrenaline) levels on standing. The sympathetic nervous system is overactivated. Symptoms often include significant anxiety, tremor, and hypertension alongside the typical POTS picture. Beta-blockers and alpha-blockers are often used.

Autoimmune POTS

An increasingly recognized subtype in which autoimmune mechanisms damage autonomic nerve fibres or receptors. Often follows viral illness or vaccination. The overlap with Long COVID is significant — many people with post-COVID dysautonomia have an autoimmune component.

Why POTS so commonly occurs alongside MCAS and EDS

POTS, MCAS, and hypermobile Ehlers-Danlos Syndrome (hEDS) frequently co-occur — sometimes called the trifecta. In hEDS, abnormally flexible connective tissue affects blood vessel walls, making them less able to constrict efficiently on standing. Mast cell activation contributes to blood volume dysregulation and autonomic instability. The three conditions amplify each other, and managing all three simultaneously requires a carefully layered approach.

2 — Symptoms and Triggers

POTS produces symptoms whenever the body fails to compensate adequately for the shift of blood on standing. Symptoms are typically worse in the morning, after eating, in heat, after exercise, and during menstruation.

Core symptoms

Dizziness and lightheadedness

Particularly on standing, but can be persistent. Caused by insufficient blood flow to the brain on upright posture.

Heart palpitations and tachycardia

Racing heart on standing is the hallmark of POTS. Can be distressing and is often mistaken for anxiety or panic disorder.

Fatigue

Profound fatigue is present in the majority of people with POTS. Related to the effort the body exerts constantly compensating for orthostatic instability.

Brain fog

Cognitive difficulties including trouble concentrating, memory problems, and word-finding difficulties. Related to reduced cerebral blood flow.

Fainting or near-fainting

Syncope or presyncope — feeling about to faint — occurs when compensation fails completely. More common in hot weather and after prolonged standing.

Nausea

Common, particularly in the morning and after meals. Related to autonomic control of digestive function and blood flow redistribution after eating.

Exercise intolerance

Exercise worsens symptoms initially, particularly upright exercise. This creates a difficult cycle as deconditioning worsens POTS, yet exercise triggers symptoms.

Headaches

Common in POTS, often positional — worsening on standing and improving when lying down. Related to blood flow regulation in the cerebral vasculature.

Common triggers and worsening factors

- Heat and warm environments — cause vasodilation and worsen blood pooling
- Large meals — blood flow is diverted to digestion, reducing what is available for the rest of the body
- Prolonged standing or sitting — allows blood to pool progressively
- Dehydration — reduces blood volume and worsens symptoms
- Menstruation — hormonal fluctuations affect blood volume and vascular tone
- Stress — activates the sympathetic nervous system, worsening hyperadrenergic symptoms
- Illness and infection — autonomic regulation is further stressed
- Alcohol — causes vasodilation and reduces blood pressure
- Hot baths or showers — heat-related vasodilation worsens blood pooling

The home standing test: A simple screening test can be done at home before specialist assessment. Lie flat for ten minutes, then stand and check your heart rate at one, three, five, and ten minutes. A rise of 30 bpm or more that is accompanied by symptoms is consistent with POTS and should be reported to your GP. This is not a diagnostic test — formal diagnosis requires medical assessment — but it can help you document what happens in your body and make a stronger case for investigation.

3 — Seeking a Diagnosis in Canada

POTS takes an average of two to twelve years to diagnose in Canada, and patients consult an average of seven clinicians before receiving a correct diagnosis. Research at the University of Toronto (Project POTS, 2024-2025) confirms that POTS is frequently misdiagnosed as anxiety, deconditioning, or other conditions in primary care. This section gives you the tools to navigate the diagnostic process more effectively.

Formal diagnostic criteria

The Canadian Cardiovascular Society Position Statement on POTS (2020) is the primary Canadian clinical reference for POTS diagnosis. Formal diagnosis of POTS requires all three of the following:

- A sustained increase in heart rate of 30 beats per minute or more within ten minutes of standing (40 bpm in those under 19 years old)
- Symptoms of orthostatic intolerance — symptoms that occur on standing and improve with lying down — present for at least three months
- Absence of orthostatic hypotension — blood pressure does not drop significantly on standing (which would suggest a different diagnosis)

The diagnosis also requires that other conditions that could explain the tachycardia — including anaemia, hyperthyroidism, dehydration, anxiety disorders, and medication effects — have been considered and addressed.

Which specialists to seek in Canada

Start with your GP

Ask your GP to perform or order an active standing test — measuring heart rate lying, then at 1, 3, 5, and 10 minutes of standing. Ask specifically: 'I am concerned I may have POTS — postural orthostatic tachycardia syndrome. Can you assess me or refer me to a specialist?' Bring a written record of your symptoms and when they occur. Request basic bloodwork to rule out other causes.

Cardiologist or electrophysiologist

The primary specialist for POTS in Canada. The Calgary Autonomic Investigation and Management Clinic, led by Dr. Satish Raj at the Libin Cardiovascular Institute of Alberta (University of Calgary), is the first and leading dysautonomia clinic in western Canada and a world-class resource. Referrals go through your GP. University of Alberta Hospital cardiology also sees POTS patients. For those in other provinces, Heart Rhythm Society or Canadian Cardiovascular Society can help identify appropriate specialists.

Neurologist

May be involved if autonomic neuropathy is suspected as the underlying mechanism — particularly in neuropathic POTS. Nerve conduction studies and autonomic testing may be ordered. Available through referral at university hospitals in Edmonton and Calgary.

Autonomic specialist

For complex or refractory cases, detailed autonomic testing — including tilt table test, Valsalva manoeuvre, sweat testing, and plasma norepinephrine levels — may be conducted at specialized centres. The Calgary Autonomic Investigation and Management Clinic performs these assessments.

Immunologist or rheumatologist

Relevant if autoimmune POTS is suspected — particularly in post-viral POTS or where autoimmune markers are elevated. May assess for autoimmune conditions including Sjogren's syndrome and related connective tissue disorders that can drive autonomic neuropathy.

Centre for Effective Practice (CEP) POTS Tool

A Canadian clinical tool developed with input from POTS specialists including Dr. Satish Raj specifically to help primary care physicians recognize, diagnose, and manage POTS. Bringing awareness of this tool to your GP appointment can be helpful. Available at cep.health/clinical-products/fm-mecfs-pots.

Tests your physician may order

Active standing test (NASA lean test)

Heart rate measured lying, then standing at intervals. The simplest and most accessible test — can be done in a GP office with a pulse oximeter or manual heart rate check. A rise of 30 bpm or more with symptoms is the diagnostic threshold.

Tilt table test

A more formal version of the standing test conducted in a specialized clinic. The patient is strapped to a table that is tilted from horizontal to upright while heart rate and blood pressure are continuously monitored. Performed at the Calgary Autonomic Investigation and Management Clinic and some university hospital settings.

Basic bloodwork

Full blood count (to rule out anaemia), thyroid function (to rule out hyperthyroidism), blood glucose, electrolytes, and ferritin. These rule out common mimics of POTS.

24-hour urine sodium

Assesses salt excretion and helps identify hypovolemic POTS. Low urine sodium suggests the kidneys are retaining salt — consistent with low blood volume.

ECG (electrocardiogram)

Rules out cardiac arrhythmias and structural heart conditions that could cause tachycardia.

Plasma norepinephrine levels

Measured lying and standing. Elevated norepinephrine on standing (above 600 pg/mL) is consistent with hyperadrenergic POTS. Available at specialized centres.

4 — Conventional Management

The Canadian Cardiovascular Society recommends starting with non-pharmacological interventions for POTS, adding medications as needed depending on symptom severity and subtype. No single treatment works for all people with POTS, and management typically requires combining multiple approaches.

Non-pharmacological — first line

Increased fluid intake

Drinking 2-3 litres of fluid per day — and up to 4 litres in some cases — helps maintain blood volume. Electrolyte-rich fluids are significantly more effective than plain water. Drinking 500ml of cold water rapidly before activity can acutely raise blood pressure and improve symptoms for up to 30 minutes.

Increased salt intake

Current recommendations are 6-10 grams of additional sodium per day beyond normal dietary intake. 6 grams is approximately one level teaspoon. Salt tablets or electrolyte supplements are commonly used. This should be discussed with your physician — it is not appropriate for everyone, particularly those with hypertension.

Compression garments

Waist-high graduated compression garments (20-40 mmHg) are one of the most effective non-pharmacological interventions. They prevent blood pooling in the lower body and reduce the cardiovascular demand of standing. Compression should be waist-high — knee-high stockings are much less effective for POTS. Put them on before getting out of bed in the morning.

Graded exercise program

Exercise is among the most evidence-supported long-term treatments for POTS, but must be introduced very carefully. Begin with recumbent exercise — swimming, rowing, recumbent cycling — before progressing to upright activity. The Dallas POTS Exercise Protocol, developed specifically for POTS, is widely referenced. The Calgary Autonomic Investigation and Management Clinic provides exercise guidance as part of their program.

Elevating the head of the bed

Sleeping with the head of the bed raised 10-20 centimetres helps the kidneys retain salt and water overnight and reduces the morning severity of POTS symptoms. Use blocks under the bed legs rather than extra pillows, which can cause neck strain.

Eating smaller, more frequent meals

Large meals divert blood flow to the digestive system and significantly worsen POTS. Smaller, more frequent meals reduce this postural demand on the circulation. Low-carbohydrate meals are generally better tolerated as carbohydrates cause more blood flow redistribution.

Pharmacological management

Medications are used when non-pharmacological approaches are insufficient. Choice of medication often depends on the POTS subtype.

Fludrocortisone

A mineralocorticoid that promotes salt and water retention, increasing blood volume. Particularly useful for hypovolemic POTS. Available by prescription. Monitor potassium levels as it can cause depletion.

Midodrine

An alpha-1 agonist that constricts blood vessels and reduces blood pooling. Particularly effective for neuropathic POTS. Available by prescription. Should not be taken within 4 hours of lying down as it can cause supine hypertension.

Beta-blockers — propranolol, bisoprolol

Reduce heart rate on standing, addressing the tachycardia component. More useful for hyperadrenergic POTS. Low-dose propranolol (10mg) is sometimes used as a first-line medication. Available by prescription.

Ivabradine

A selective heart rate-reducing medication that works differently from beta-blockers. Emerging evidence supports its use in POTS, particularly where beta-blockers are not tolerated. Available by prescription in Canada.

Pyridostigmine

An acetylcholinesterase inhibitor that enhances autonomic transmission. Evidence supports its use in POTS and it is generally well tolerated. Available by prescription.

Desmopressin (DDAVP)

A synthetic vasopressin that reduces urine output and increases blood volume acutely. Used situationally rather than daily — for example, before prolonged standing activities.

5 — Self-Management Approaches

Daily self-management has a greater impact on POTS symptoms than any single medical intervention. The following approaches complement medical treatment and build the physiological resilience that underlies improvement.

Heat avoidance and cooling strategies

Heat causes vasodilation and dramatically worsens POTS. Cooling vests, cold drinks before activity, cool showers rather than hot baths, and avoiding prolonged sun exposure help manage heat-related worsening. Many people with POTS find that their most manageable hours are cooler morning hours before the day heats up.

Pacing and activity management

Overexertion triggers post-exertional worsening. Learning your limits and resting proactively rather than reactively reduces both symptom burden and the deconditioning cycle. Heart rate monitoring — keeping heart rate below your aerobic threshold during activity — is used by many people with POTS to pace safely.

Nervous system regulation

The autonomic nervous system responds to stress regulation practices. Slow diaphragmatic breathing, biofeedback, gentle yoga, and somatic therapies support parasympathetic tone and reduce the sympathetic overdrive that worsens POTS. These practices also help address the anxiety that often accompanies and is often mistaken for POTS.

Strategic positioning

Physical countermanoeuvres reduce symptoms acutely. Crossing the legs while standing, squatting, contracting leg muscles, and tensing the abdomen all reduce blood pooling and can be used situationally. Sitting rather than standing whenever possible, and lying briefly before necessary standing, reduce symptom burden throughout the day.

Dietary electrolyte management

Beyond the salt recommendations covered under conventional management, dietary electrolyte balance matters. Adequate potassium from food sources — bananas, sweet potatoes, avocados — supports the increased salt intake. Magnesium supports vascular tone and nervous system regulation. Avoiding alcohol is strongly recommended as it causes vasodilation and dehydration.

Sleep positioning and morning routine

Getting out of bed slowly — sitting at the edge of the bed for several minutes before standing — allows the body to begin compensating before full upright posture. Putting compression garments on before standing, and having a salt and fluid intake before or immediately on rising, significantly improve morning symptoms.

Symptom and trigger tracking

A daily log of symptoms, heart rate on standing, fluid and salt intake, activity, sleep, and any triggers helps identify patterns and guides management adjustments. Sharing this data with your care team improves the quality of medical appointments.

6 — Nutritional Supplements

The following supplements are commonly used in POTS management and have varying levels of evidence. Introduce one at a time and monitor carefully. Always inform all of your healthcare practitioners of everything you are taking.

Electrolytes — sodium, potassium, magnesium

Electrolyte supplementation is foundational in POTS management. Commercial electrolyte products or homemade solutions (water, salt, a small amount of citrus juice, and potassium) are used daily by most people with POTS. Electrolyte drinks are significantly more effective than plain water for expanding blood volume. Choose low-sugar formulations.

Magnesium glycinate

Supports vascular tone, nervous system regulation, and sleep — all relevant in POTS. Deficiency is common. Magnesium glycinate is well absorbed and gentle on the gut. 300-400mg at bedtime is a commonly used dose.

Vitamin D

Deficiency is extremely common in Canada and has been associated with autonomic dysfunction. Have your level tested. Optimal for autonomic and immune function is generally 100-150 nmol/L. Supplementation of 2000-4000 IU daily is commonly needed in northern climates.

Vitamin B12 — methylcobalamin

Supports autonomic nerve function and is particularly relevant if neuropathic POTS is suspected. Methylcobalamin form is preferred as it is better retained in nerve tissue than cyanocobalamin. Consider sublingual or injectable forms if absorption is a concern.

CoQ10 (ubiquinol)

Supports mitochondrial energy production and has evidence for reducing fatigue in dysautonomia conditions. Particularly relevant for the profound fatigue component of POTS. Ubiquinol form is better absorbed than ubiquinone.

Alpha-lipoic acid

An antioxidant with evidence for supporting autonomic nerve function, particularly in neuropathic conditions. Used in neuropathic POTS where small fibre neuropathy is suspected. Start with 300-600mg daily.

Iron (ferritin)

Low ferritin — even within the 'normal' laboratory range — is associated with worsened POTS. Many POTS specialists aim for ferritin above 50-80 ng/mL. Have your ferritin specifically tested rather than relying on full iron panel alone. Supplementation should be guided by test results.

7 — Tracking, Care Coordination, and Trusted Resources

Coordinating your care team

POTS management benefits from a coordinated team including your GP, cardiologist or dysautonomia specialist, physiotherapist experienced in POTS rehabilitation, and where relevant a neurologist, immunologist, and psychologist. Ask all practitioners to communicate with each other. Keep a current medication and supplement list and share it with everyone on your team.

If you are in Alberta and seeking specialist care, the Calgary Autonomic Investigation and Management Clinic at the Libin Cardiovascular Institute is the leading resource in western Canada. Referrals go through your GP. The wait can be significant — ask your GP to refer early and to begin non-pharmacological management in the interim.

Trusted resources

Dysautonomia International

The leading international patient organization for POTS and other dysautonomia conditions. Extensive evidence-based patient resources, physician directory, research updates, and community support. Strongly recommended as a primary resource.

dysautonomiainternational.org

Canadian Cardiovascular Society — POTS Position Statement

The official Canadian clinical guidance on POTS diagnosis and management, published in the Canadian Journal of Cardiology. Free access online. A useful document to share with your GP.

onlinecjc.ca — search 'CCS POTS position statement 2020'

Centre for Effective Practice — FM, ME/CFS and POTS Tool

A Canadian clinical decision tool developed with leading POTS specialists including Dr. Satish Raj, designed to help primary care physicians recognize, diagnose, and manage POTS. Sharing awareness of this tool with your GP can improve your care.

cep.health/clinical-products/fm-mecfs-pots

Calgary Autonomic Investigation and Management Clinic

The first and leading dysautonomia clinic in western Canada, led by world-renowned POTS specialist Dr. Satish Raj at the Libin Cardiovascular Institute of Alberta. Referral from your GP required.

libin.ucalgary.ca — search 'autonomic clinic'

POTS UK

UK-based patient organization with comprehensive, evidence-informed patient guides on POTS diagnosis, management, and daily living. Highly regarded by the international POTS community.

potsuk.org

Bearable App

A symptom tracking app well suited to POTS — allows logging of heart rate, symptoms, fluid and salt intake, activity, sleep, and mood with pattern analysis.

bearable.app

Prepared by Natalie Pepin, Herbalist and Homeopath | Two Roots | tworoots.ca | Two Roots operates under Meeting My Ancestors Ltd. | Perryvale, Alberta