

TWO ROOTS

Long COVID

Support Guide

Post-COVID-19 Condition

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

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This guide is for educational purposes and does not constitute medical advice. Please work with your healthcare team for personalized support.

1 — What is Long COVID: Understanding the Mechanism

Long COVID — formally called Post-COVID-19 Condition (PCC) — is defined by the World Health Organization as symptoms that persist or develop following SARS-CoV-2 infection, lasting at least two to three months, not explained by an alternative diagnosis. It can follow any severity of COVID-19 infection, including mild cases. It can appear after a first infection or a subsequent one. And it does not follow a predictable pattern.

The Canadian Guidelines for Post-COVID-19 Condition (CAN-PCC), developed by a team of 90 researchers, clinicians, and people with lived experience across Canada, represent the most comprehensive Canadian clinical guidance on Long COVID. The Government of Canada's 2024 report on longer-term symptoms confirms that Long COVID is a significant public health issue in Canada with widespread impact on function and quality of life.

What is happening in the body

Long COVID is not a single disease — it is a syndrome with multiple overlapping biological mechanisms that vary between individuals. Current research has identified several key pathways:

Viral persistence

Evidence increasingly suggests that SARS-CoV-2 or its components can persist in body tissues — particularly the gut, lymph nodes, and brain — for months or years after the acute infection. This viral reservoir may drive ongoing immune activation and inflammation, explaining why symptoms persist long after the initial illness has resolved.

Immune dysregulation

Long COVID involves measurable immune abnormalities including chronic inflammation, autoantibody production, T-cell exhaustion, and reactivation of latent viruses including Epstein-Barr virus and HHV-6. The immune system appears to be caught in a state of chronic activation or dysregulation that it cannot resolve on its own.

Microbiome disruption

COVID-19 infection significantly disrupts the gut microbiome. Gut dysbiosis persists in Long COVID and contributes to ongoing immune activation, neurological symptoms through the gut-brain axis, and systemic inflammation. Restoring microbiome diversity is an important part of Long COVID management.

Autonomic nervous system dysfunction

Autonomic dysregulation — often presenting as POTS — is one of the most common findings in Long COVID. COVID-19 affects the autonomic nervous system directly, producing orthostatic intolerance, heart rate dysregulation, fatigue, and cognitive difficulties. The overlap between Long COVID and POTS is significant.

Mitochondrial and energy dysfunction

Similar to ME/CFS, Long COVID involves impaired cellular energy production. Research has found mitochondrial abnormalities, reduced ATP production, and evidence of oxidative stress in Long COVID patients. This underlies the profound fatigue and post-exertional malaise that many people experience.

Endothelial and vascular damage

COVID-19 damages the endothelium — the lining of blood vessels — and can cause microclotting. These vascular effects contribute to organ damage, reduced oxygen delivery, brain fog, and the cardiovascular symptoms of Long COVID. Anti-platelet and anti-inflammatory approaches address this dimension.

Neuroinflammation

Brain imaging studies show neuroinflammation in Long COVID patients. Neurological symptoms including brain fog, headaches, cognitive difficulties, and mood changes reflect this ongoing neurological involvement. The brain's immune cells — microglia — appear to remain in an activated state.

Mast cell activation

MCAS is increasingly recognized as either triggered or worsened by COVID-19 infection. Mast cell activation contributes to the wide-ranging, unpredictable symptom pattern of Long COVID and explains why some people react strongly to foods, fragrances, and other triggers after their infection.

2 — Symptoms and Their Patterns

Long COVID produces more than 200 documented symptoms across multiple organ systems. Symptoms fluctuate in severity, can be triggered or worsened by exertion, and often differ from the original COVID-19 illness. The symptom picture is individual — no two people with Long COVID experience it in exactly the same way.

Core symptom clusters

Fatigue and post-exertional malaise

Profound fatigue is the most commonly reported Long COVID symptom. For many people, exertion — physical, cognitive, or emotional — triggers a worsening of all symptoms that can last days or weeks. This post-exertional malaise pattern is identical to that of ME/CFS.

Cognitive difficulties — brain fog

Difficulty concentrating, memory problems, word-finding difficulties, and slowed information processing. Often described as thinking through cotton wool. Can be profoundly disabling and is among the most impactful symptoms for employment and daily function.

Breathlessness

Shortness of breath, reduced exercise tolerance, and sometimes a sensation of air hunger even at rest. Can persist long after lungs have healed from the acute infection. Related to both pulmonary and autonomic factors.

Cardiovascular symptoms

Heart palpitations, racing heart, chest discomfort, and orthostatic intolerance. POTS is found in a significant proportion of people with Long COVID cardiovascular symptoms. These symptoms can be alarming and significantly limit activity.

Pain

Headaches, joint and muscle pain, and chest pain are common. Headaches in Long COVID are often daily, severe, and different in character from any pre-existing headaches.

Sleep disruption

Non-restorative sleep, insomnia, and disrupted sleep-wake cycles. Sleep disruption compounds all other Long COVID symptoms and is an important target for management.

Mood changes

Anxiety, depression, and emotional dysregulation are common. These reflect both the neurological impact of COVID-19 and the psychological burden of living with a chronic, fluctuating, often disbelieved illness.

Sensory changes

Persistent loss or distortion of smell and taste, visual disturbances, tinnitus, and heightened sensitivity to light and sound. Loss of smell affects nutrition, safety, and quality of life significantly.

The post-exertional malaise pattern

Many people with Long COVID discover that exertion — even mild activity — triggers a delayed worsening of all symptoms. This post-exertional malaise (PEM) may not appear until 12-48 hours after the triggering activity, making cause and effect difficult to identify. Understanding and respecting this pattern is essential — pushing through PEM reliably leads to deterioration. The pacing approach used in ME/CFS applies directly to Long COVID with PEM.

3 — Seeking Diagnosis and Care in Canada

Long COVID has no single diagnostic test. Diagnosis is clinical — based on symptom history following COVID-19 infection with exclusion of other explanations. Standard laboratory investigations are often normal in Long COVID, which does not mean there is nothing wrong. Canada has developed specific clinical resources and care pathways for Long COVID that are worth knowing about.

How Long COVID is diagnosed

The WHO definition requires symptoms persisting or new after COVID-19 infection, lasting at least two to three months, not explained by an alternative diagnosis. The Canadian Guidelines (CAN-PCC) support this definition and recommend a person-centred, multidisciplinary approach to assessment. Relevant considerations:

- Symptoms may follow any severity of COVID-19 — including mild or asymptomatic infection
- No confirmed positive COVID-19 test is required — a clinically probable infection is sufficient
- Symptoms may be continuous from the original infection, or may appear weeks to months after apparent recovery
- Standard bloodwork is frequently normal — this is expected and does not disprove the diagnosis
- The assessment should cover all affected body systems — not just the most prominent symptom

You do not need a confirmed positive COVID-19 test to receive a Long COVID diagnosis. Many people who were infected before widespread testing was available, or who tested negative with rapid tests while being PCR positive, are excluded from care because of this. The Canadian Guidelines explicitly state that a clinically probable infection is sufficient. Bring this to your appointment if you are being turned away on this basis.

Alberta-specific care pathways

Alberta Health Services developed a provincial Long COVID care pathway, described in a 2024 study from the University of Alberta and University of Calgary. The pathway is designed to support multidisciplinary management. Key Alberta resources include:

Edmonton North PCN COVID-19 Recovery Clinic

Located at Northgate Centre (9499 137 Avenue) and Rundle Health Centre (3427 118 Avenue) in Edmonton. Open to any patient still experiencing COVID-19 symptoms ten weeks or more after a positive test or presumptive COVID-19 case. No specialist referral required — ask your GP or PCN to connect you. Provides assessment and access to multiple specialties.

The Other Pain Clinic — COVID Rehab and Survivorship Program, Calgary

Offers virtual care options alongside in-person services in Calgary. Provides rehabilitation-focused programs for Long COVID. Contact through their online form at theotherpainclinic.com.

Your GP or primary care network (PCN)

Your GP or PCN is the first point of contact for Long COVID in Alberta. Ask specifically for a Long COVID assessment and reference the Alberta Health Services Long COVID pathway. Many PCNs now have processes for connecting Long COVID patients to appropriate specialists.

Which specialists may be involved

Respirologist or pulmonologist

If breathlessness and reduced respiratory function are prominent. Can assess for any ongoing pulmonary damage and provide pulmonary rehabilitation.

Cardiologist or dysautonomia specialist

If cardiovascular symptoms — palpitations, orthostatic intolerance, POTS — are significant. The Calgary Autonomic Investigation and Management Clinic at the Libin Cardiovascular Institute has experience with post-COVID dysautonomia.

Neurologist

If cognitive symptoms, headaches, or neurological symptoms are prominent. Can assess for small fibre neuropathy and other neurological sequelae of COVID-19.

Rheumatologist or immunologist

If autoimmune features are suspected or if inflammatory markers are elevated. Long COVID can trigger or unmask autoimmune conditions.

Rehabilitation medicine — physiotherapy and occupational therapy

Canadian evidence strongly supports multidisciplinary rehabilitation for Long COVID. Physiotherapists and occupational therapists experienced with post-viral conditions can support pacing, breathing retraining, and functional rehabilitation.

Mental health — psychologist or psychiatrist

For the significant psychological burden of Long COVID, including anxiety, depression, and adjustment to illness. Long COVID-informed psychological support is important — support that acknowledges the biological nature of the illness rather than attributing it to psychological causes.

Relevant investigations

Standard bloodwork

Full blood count, metabolic panel, thyroid function, inflammatory markers, ferritin, vitamin D, B12, and glucose. Often normal in Long COVID — expected normal results do not disprove the diagnosis.

ECG and cardiac assessment

If cardiovascular symptoms are present. Rules out structural cardiac causes and can assess for arrhythmia.

Active standing test

If POTS or orthostatic intolerance is suspected. Heart rate measured lying and at intervals on standing. A rise of 30 bpm or more with symptoms warrants further cardiology assessment.

Pulmonary function tests and chest imaging

If respiratory symptoms are prominent. Can assess for pulmonary sequelae of COVID-19 including interstitial lung changes.

Neuropsychological assessment

If cognitive symptoms are significantly impacting function. Can document deficits and guide rehabilitation.

4 — Management Approaches

There is currently no single approved treatment for Long COVID. Management is symptom-directed, multidisciplinary, and must be calibrated carefully — particularly where post-exertional malaise is present. The CAN-PCC guidelines emphasize a person-centred approach that acknowledges the biological nature of the illness.

Pacing — essential where PEM is present

If post-exertional malaise is part of your Long COVID picture, pacing is the most critical management principle. Pushing through symptoms reliably causes deterioration. Stay within your energy envelope, use heart rate monitoring to guide safe activity levels, and rest proactively. See Section 4 of the Two Roots ME/CFS Support Guide for detailed pacing guidance — the same principles apply directly.

Symptom-directed management

Breathing retraining

Many people with Long COVID develop dysfunctional breathing patterns following the respiratory impact of infection. Breathing retraining — working with a physiotherapist experienced in post-viral conditions — can significantly improve breathlessness, fatigue, and nervous system dysregulation. The Buteyko method and similar approaches have been used in Long COVID rehabilitation.

Orthostatic management

If POTS or orthostatic intolerance is present, the approaches from the Two Roots POTS Support Guide apply directly: increased salt and fluid intake, waist-high compression garments, elevation of the head of the bed, avoiding prolonged standing, and where appropriate, medications including midodrine or fludrocortisone.

Sleep support

Addressing sleep quality is high priority. Consistent sleep timing, sleep hygiene measures, low-dose melatonin, and where necessary, low-dose tricyclics or other sleep-supporting medications can help restore restorative sleep and reduce downstream symptom burden.

Cognitive rehabilitation

Paced cognitive activity, brain rest during symptom flares, and structured cognitive rehabilitation with an occupational therapist can support gradual improvement in brain fog. Digital tools such as Bredesen Protocol-inspired cognitive exercises have been used in Long COVID.

Anti-inflammatory approaches

Low-dose naltrexone (LDN) has emerging evidence for reducing neuroinflammation in Long COVID and ME/CFS. Some Long COVID specialists also use low-dose antihistamines (H1 and H2 blockers) where MCAS involvement is suspected. Discuss these options with your physician.

Antivirals and antiviral research

There is active research into whether antivirals targeting viral persistence can improve Long COVID outcomes. Paxlovid (nirmatrelvir/ritonavir) is being studied in Long COVID. This remains an evolving area — connect with Long COVID research networks if you are interested in participating in trials.

5 — Self-Management Approaches

Daily self-management is central to navigating Long COVID. The following approaches support the body's recovery while protecting against deterioration from overexertion.

Detailed symptom tracking

Tracking symptoms, heart rate, activity levels, sleep, and triggers creates the data needed to understand your pattern and identify what helps and what triggers worsening. Apps such as Bearable or paper diaries both work — consistency matters most. This data also makes medical appointments significantly more productive.

Dietary support

An anti-inflammatory whole foods diet reduces systemic inflammation associated with Long COVID. Blood sugar regulation is particularly important — energy crashes from blood sugar fluctuations compound Long COVID fatigue significantly. Small, regular meals with adequate protein maintain more stable energy levels. Reducing ultra-processed foods, refined sugars, and alcohol supports overall recovery.

Gut microbiome restoration

Probiotic foods — yoghurt, kefir, sauerkraut, and kimchi where tolerated — and diverse prebiotic fibre support microbiome recovery. A diverse microbiome reduces immune activation and supports the gut-brain axis. Introduce probiotic supplements gradually, particularly if MCAS involvement is suspected.

Nervous system regulation

Stress and sympathetic nervous system activation worsen Long COVID across multiple biological pathways. Slow diaphragmatic breathing, vagal toning practices, gentle yoga, somatic therapies, and time in nature support parasympathetic activation and reduce neuroinflammatory burden. These are not optional wellness extras — they are active biological interventions.

Sensory management for brain fog

Reducing sensory load during brain fog episodes supports cognitive recovery. Dimmed lighting, reduced screen time, quiet environments, and low-stimulation rest allow the nervous system to recover between cognitive demands. Planning cognitively demanding tasks for your best hours and protecting those times from lower-priority demands improves overall cognitive output.

Heat management

Heat worsens many Long COVID symptoms, particularly those related to autonomic dysfunction. Cooling strategies — cool showers, cold drinks, cooling vests, air conditioning — reduce autonomic stress and symptom burden during warm weather.

Social and psychological support

Long COVID is often an isolating experience — the fluctuating, invisible nature of the illness is difficult for others to understand. Peer support through Long COVID communities provides both practical knowledge and the profound relief of being understood. Long COVID Resources Canada (longcovidresourcescanada.ca) maintains Canadian community resources.

6 — Nutritional Supplements

The following supplements address the key biological mechanisms of Long COVID. Introduce one at a time, starting with the lowest available dose. Inform all healthcare practitioners of everything you are taking. If MCAS involvement is suspected, choose single-ingredient, additive-free preparations and introduce especially slowly.

Anti-inflammatory and immune support

Vitamin D

Essential immune modulator and anti-inflammatory. Deficiency is very common in Canada. Have your level tested — optimal for immune function and Long COVID recovery is generally 100-150 nmol/L. 2000-4000 IU daily is typically needed in northern climates, higher doses may be appropriate under medical supervision.

Quercetin

Antioxidant flavonoid with anti-inflammatory, antiviral, and mast cell-stabilizing properties. Addresses multiple Long COVID mechanisms simultaneously. Particularly relevant where MCAS involvement is suspected. Start low — some people react to high doses.

Omega-3 fatty acids — EPA and DHA

Anti-inflammatory and essential for neurological function. DHA specifically reduces neuroinflammation. Choose fresh, molecularly distilled fish oil or algal omega-3. Algal omega-3 is a plant-based alternative and often better tolerated where MCAS is present.

Vitamin C

Antioxidant with immune-modulating properties. Supports histamine breakdown where MCAS is involved. Sodium ascorbate or calcium ascorbate forms are gentler than ascorbic acid.

Mitochondrial and energy support

CoQ10 — ubiquinol

Supports mitochondrial function and ATP production. Evidence for reducing fatigue in post-viral conditions. Ubiquinol form is better absorbed. 200-400mg daily.

Magnesium — glycinate or malate

Supports energy metabolism, nervous system regulation, sleep, and vascular tone. Magnesium malate is preferred for energy production support. 300-400mg at bedtime.

B vitamins — B12 and B complex

Support energy metabolism and neurological function. Methylated forms are better absorbed by many people. Particularly important for cognitive symptoms and fatigue.

Alpha-lipoic acid

Antioxidant with evidence for reducing oxidative stress and supporting mitochondrial and neurological function. 300-600mg daily.

Gut and microbiome support

Probiotics

Gut dysbiosis is central to Long COVID. Lactobacillus and Bifidobacterium strains support microbiome restoration and reduce immune activation. Start with very low doses and increase gradually. Spore-based probiotics (Bacillus coagulans) are often better tolerated where gut sensitivity is present.

Prebiotic fibre

Diverse plant fibre feeds beneficial gut bacteria and supports microbiome recovery. Include a wide variety of vegetables, legumes, and whole grains. Gradually increase fibre intake to avoid digestive discomfort.

7 — Tracking, Care Coordination, and Trusted Resources

Coordinating your care

Long COVID care in Canada is multidisciplinary by design. Coordinate your GP, relevant specialists, physiotherapist, and where needed occupational therapist, psychologist, and dietitian. Ask your GP to be the central coordinator of your team and to communicate with specialists on your behalf. Keep a current medication and supplement list and share it with everyone.

If you are interested in participating in Long COVID research, the Canadian Longitudinal Study on Aging (CLSA) and other Canadian research networks are actively recruiting Long COVID participants. Contributing to research both advances the science and often connects you to leading clinicians in this space.

Trusted resources

Long COVID Resources Canada

Canada's most comprehensive Long COVID resource directory. Provides information on Canadian clinics, research studies, support communities, and advocacy resources. Updated regularly with new Canadian developments.
longcovidresourcescanada.ca

Canadian Guidelines for Post-COVID-19 Condition (CAN-PCC)

The official Canadian clinical guidelines for Long COVID developed by a team of 90 researchers, clinicians, and people with lived experience. Includes plain-language recommendations for patients. Essential reference.
canpcc.ca

Long COVID Web

A Canadian network of scientists, clinicians, and people with lived experience of Long COVID. Provides trusted resource directories and research connections.
longcovidweb.ca/trusted-resources

BC Centre for Long COVID, ME/CFS, and Fibromyalgia

Led by Dr. Ric Arseneau. Provides patient resources and clinical guidance on the overlap between Long COVID, ME/CFS, and fibromyalgia. Useful for understanding the shared mechanisms across these conditions.
bc-clmf.org

Survivor Corps — Canadian Post-COVID Care Centres

A directory of Canadian clinics providing post-COVID care, organized by province and service type. Useful for identifying resources in your region beyond Alberta.
survivorcorps.com/pccc-canada

Bearable App

Symptom tracking app well suited to the multisystem complexity of Long COVID. Allows logging of over 100 symptoms, heart rate, activity, sleep, mood, and triggers with pattern analysis.
bearable.app

Two Roots offers clinical herbal medicine and homeopathic support for people navigating Long COVID and other complex chronic conditions. Consultations are available in person in Perryvale, Alberta, and by telehealth across Canada. Custom formulations are prepared and shipped nationally. If you would like to explore what an integrative approach can offer for your specific picture, visit tworoots.ca or reach out to Natalie directly.

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