

Early detection of autoimmune type 1 diabetes (aT1D)

Understanding aT1D

aT1D is a **lifelong autoimmune condition** where the immune system mistakenly attacks and destroys the cells in the pancreas that make insulin. Without insulin, blood sugar levels can get too high. People with aT1D rely on daily insulin injections or an insulin pump to manage their sugar levels.

aT1D often goes undiagnosed until symptoms appear; however, **aT1D can start months to years before the onset of symptoms**. Symptoms can range from mild, like excessive thirst and frequent urination, to very serious complications like diabetic ketoacidosis (DKA). DKA occurs when insulin levels get too low, resulting in high sugar levels and a build-up of acids in the blood. DKA is a life-threatening condition that requires emergency medical care.

It is possible to detect aT1D early, before the onset of symptoms, by testing for specific autoantibodies in the blood that signal that the autoimmune attack may have started

What causes aT1D?

Although the exact causes of aT1D are not fully known, there are certain factors that can increase someone's chances of getting aT1D. These factors include having a personal or family history of aT1D or autoimmune conditions.

Anyone, regardless of age, lifestyle, or family history, can develop aT1D. Around 90% of people with aT1D have no family history of it.

What does early detection of aT1D mean?

A blood test can detect aT1D before you have symptoms. The test looks for the presence of four specific autoantibodies (proteins) that may indicate early stages of aT1D.

Who should be screened for aT1D?



People **related to someone with aT1D or other autoimmune conditions**, such as a parent, sibling, child, grandparent, cousin, aunt, uncle, niece or nephew



People who currently have an **autoimmune condition**, such as celiac disease and thyroid disease

People who have elevated blood sugars and have been previously diagnosed with **prediabetes** or **type 2 diabetes**, as they may actually have aT1D



Regardless of age, family history, or other autoimmune conditions, **anyone can develop aT1D**



You can be screened for aT1D before symptoms appear. This allows doctors to identify your risk early.

Benefits of screening and early detection

- Early detection of aT1D can help you be better prepared to recognize symptoms if they appear
- Screening is important in helping to reduce the occurrence of DKA. This gives you and your healthcare provider the opportunity to monitor for signs and manage any symptoms to help prevent DKA.
- Early detection provides you or your loved ones the opportunity to participate in clinical trials, testing potential therapies for management or delay of aT1D
- Screening for aT1D helps with knowing your options for treatment and support from your healthcare team



It is normal to feel anxious about aT1D screening, but there is support available for you and your loved ones:

- **Breakthrough T1D** is an organization that advocates for aT1D research around the world and in Canada. They also offer support at any age or stage of life for people and families with aT1D.
- Other organizations such as **Diabetes Canada**, **ConnectT1D Canada** or **Type1Together** provide resources, education and guidance to help manage the emotional impact of a new diagnosis
- The **Mental Health + Diabetes Directory**, supported by Breakthrough T1D and Diabetes Canada, provides people living with or affected by diabetes with access to information about registered mental health providers

Get screened with a simple blood test

Your doctor can perform a simple blood test in their clinic, refer you to a lab or request that a lab professional come to you. The test can be performed on a Dried Blood Spot card.



DRIED BLOOD SPOT (DBS)

A blood test where a small amount of blood is collected from a finger prick, dried on paper, and shipped to the lab for analyzing

What happens after screening?

NEGATIVE RESULT

At the time of testing, a negative result indicates low chances of developing aT1D. Your healthcare provider can provide recommendations for additional screening based on your risk profile.

POSITIVE RESULT

One or more aT1D-associated antibodies were found in your blood, which means that the chances of developing aT1D in your lifetime may be higher than for someone who tested negative.



Your healthcare provider will explain your test results and provide guidance on next steps

If you test positive for one or more autoantibodies, you will undergo a second blood test to confirm the results

Getting screened for aT1D in Canada

There are currently two ways to access aT1D screening in Canada. One is through **TrialNet**, a research organization that offers screening to relatives of people with aT1D. TrialNet also offers opportunities to participate in research studies. For more information, see www.trialnet.org.

The other way to access screening is through the **UncoverT1D Early Detection Program**. This program offers screening in Canada with expanded patient eligibility. For more information, see www.uncoverT1D.ca.

Your healthcare provider can help you determine which screening option is right for you.

