

# Diabetes & COVID-19: Scientists explore potential connection

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Nolan Balcitis, 12, sits with his dog, Callie, in front of his family's home in Crown Point, Ind., on March 4, 2022. Nolan was diagnosed with Type 1 diabetes six months after a mild case of COVID-19. Reports of rising diabetes cases during the pandemic have scientists exploring if there could be a link with the coronavirus. Emerging evidence shows the virus can attack insulin-producing cells in the pancreas, a process that might trigger diabetes in susceptible people. Credit: AP Photo/Teresa Crawford

When their 11-year-old son started losing weight and drinking lots of water, Tabitha and Bryan Balcitis chalked it up to a growth spurt and advice from his health class. But unusual crankiness and lethargy raised their concern, and tests showed his blood sugar levels were off the charts.

Just six months after a mild case of COVID-19, the Crown Point, Indiana, boy was diagnosed with Type 1 [diabetes](#). His parents were floored—it didn't run in the family, but autoimmune illness did and doctors said that could be a factor.

Could his diabetes also be linked with the coronavirus, wondered Nolan's mom, a respiratory therapist. Turns out scientists in the U.S. and elsewhere are asking the same question and investigating whether any connection is more than a coincidence.

It's clear that in those who already have diabetes, COVID-19 can worsen the condition and lead to severe complications. But there are other possible links

Emerging evidence shows that the coronavirus—like some other viruses—can attack insulin-producing cells in the pancreas—a process that might trigger at least temporary diabetes in susceptible people. Rising cases might also reflect circumstances involving pandemic restrictions, including delayed medical care for early signs of diabetes or unhealthy eating habits and inactivity in people already at risk for Type 2 diabetes.

A Centers for Disease Control and Prevention report looked at two large U.S. insurance databases that included new diabetes cases from March 2020 through June 2021. Diabetes was substantially more common in

kids who'd had COVID-19. The report didn't distinguish between Type 1, which typically starts in childhood, and Type 2, the kind tied to obesity.

Rates of both types of diabetes have risen in U.S. kids in recent years, but reports from Europe and some U.S. hospitals suggest the pace may have accelerated during the pandemic.

"I think we're all a little worried," said Dr. Inas Thomas, a specialist at the University of Michigan's Mott Children's Hospital.

Her hospital has seen a 30% increase in Type 1, compared with pre-pandemic years, Thomas said. It is not known how many had COVID-19 at some point, but the timing raises concerns that there could be a connection, she said.

Type 1 diabetes occurs when the pancreas produces little or no insulin, a hormone that regulates blood sugar. It is thought to involve an autoimmune reaction, with the body attacking insulin-making cells in the pancreas. Patients must use manufactured insulin to manage the chronic condition.

Experts have long theorized that some previous infection may trigger that autoimmune response.

With COVID-19, "We don't know if it's a direct effect or some other factor that's not fully understood yet, but we are hoping that this trend may help us figure out the trigger for what causes Type 1 diabetes," Thomas said.



Nolan Balcitis, left, plays the board game Monopoly with his family at their home in Crown Point, Ind., on March 5, 2022. From left are Nolan, Bryan, Tabitha and Colin Balcitis. Nolan was diagnosed with Type 1 diabetes six months after a mild case of COVID-19. Reports of rising diabetes cases during the pandemic have scientists exploring if there could be a link with the coronavirus. Emerging evidence shows the virus can attack insulin-producing cells in the pancreas, a process that might trigger diabetes in susceptible people. Credit: AP Photo/Teresa Crawford

At Rady Children's Hospital in San Diego, Type 1 diabetes cases jumped almost 60% during the first year of the pandemic, compared with the previous 12 months, researchers reported recently in JAMA Pediatrics. Just 2% of those children had active COVID-19 and the report lacked information on any prior infections. But the sharp increase was striking and "clearly there's a lot more work to be done to try to answer why is

this happening," said co-author Dr. Jane Kim.

Type 2 diabetes, which mostly affects adults, impairs how the body uses insulin, leading to poorly regulated blood sugar. Causes are uncertain but genetics, excess weight, inactivity and unhealthy eating habits play a role. It can sometimes be treated or reversed with [lifestyle changes](#).

Globally, more than 540 million people have diabetes, including about 37 million in the United States. Most have Type 2 diabetes, and many more have higher than normal blood sugar levels, or prediabetes. Doctors worry that COVID-19 or sluggish pandemic lifestyles might be among things that push them over the edge.

A diabetes center at Chicago's La Rabida Children's Hospital has seen a pandemic surge in prediabetes. Center co-director Rosemary Briars suspects long, sedentary hours of online learning played a role.

Dr. Rasa Kazlauskaite, a diabetes specialist at Chicago's Rush University Medical Center, said steroid drugs that are sometimes used to reduce inflammation in hospitalized patients with infections including COVID-19 can cause blood sugar increases leading to diabetes. Sometimes it resolves after steroids are stopped, but not always, she said.

The physical stress of severe COVID-19 and other illnesses can also cause high blood sugar and temporary diabetes, she said.

To learn more, scientists in Denmark are enrolling adults recently diagnosed with Type 1 diabetes, including some who had COVID-19. Over time, the researchers will check whether the condition progresses faster in those who had COVID-19, which could help clarify the infection's role, if any, in developing diabetes, said researcher Dr. Morten Bjerregaard-Andersen, a diabetes specialist at the Hospital of South West Jutland.

"The theory is if you had COVID-19, then your own insulin production will be more compromised than if you weren't infected," Bjerregaard-Andersen said.

Researchers at King's College London and Monash University in Melbourne, Australia, have launched an international COVID-19-diabetes registry. Among things they hope to learn: Does diabetes in COVID-19 patients persist after they recover; do they face higher risks of getting diabetes again; could diabetes in COVID-19 patients be an entirely new type of diabetes.

Nolan Balcitis, now 12, says he knew nothing about diabetes before his diagnosis last year. He was nervous at first about all that's involved in managing the disease—counting carbohydrates, checking blood sugar, insulin shots. But a wearable insulin pump lets him skip daily injections, and a sensor on his arm makes monitoring a breeze.

A typical kid who likes baseball and playing with his yellow Labrador retriever, Callie, Nolan shrugs off his condition.

"I'm just kind of used to it now," the boy said with the nonchalance of an almost-teenager.

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