

# SARS-CoV-2 unlikely to cause type 1 diabetes

March 23 2023

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More children and adolescents than usual developed type 1 diabetes in Finland in the first 18 months of the coronavirus pandemic. According to a recently completed study, the cause was not the novel coronavirus,

but altered environmental factors. The results were published in *The Lancet Diabetes & Endocrinology*.

The incidence of type 1 diabetes increased globally during the coronavirus [pandemic](#). The PEDIA research group of the University of Helsinki has investigated the phenomenon and its causes in [children](#) in Finland.

"The mechanisms of the increase in the incidence of diabetes have been unclear, and there has been discussion on whether the increase results from a direct effect of SARS-CoV-2 infection or other simultaneously altered [environmental factors](#)," says Professor Mikael Knip, who headed the study.

According to the study, the incidence of type 1 diabetes increased in children in Finland by 16% in the first 18 months of the pandemic. However, very few children or adolescents who developed type 1 diabetes had SARS-CoV-2 antibodies indicating a past infection.

According to the researchers, the increase in the incidence of type 1 diabetes in the early stages of the pandemic is not likely to have been caused directly by coronavirus. Instead, it may be related to the society-wide lockdown in the pandemic period and the resulting social isolation.

"According to what is known as the biodiversity hypothesis, microbial exposure and infections in [early childhood](#) can boost the protection against autoimmune diseases. The reduction in contacts in connection with the societal lockdown significantly reduced acute infections in children, which may have increased the risk of developing diabetes," Knip explains.

**Is the increase in the incidence of pediatric diabetes**

## temporary?

In the study, the incidence of type 1 diabetes in Finns under 15 years of age was compared to three preceding reference periods of the same duration. SARS-CoV-2 antibodies in children with type 1 diabetes were analyzed in collaboration with Professor Olli Vapalahti's research group. Among the 785 children and adolescents diagnosed with type 1 diabetes in the pandemic period, infection-induced SARS-CoV-2 antibodies were found in only five individuals, i.e., less than 1%.

"The matter must be investigated further to find out what has happened to the incidence of type 1 diabetes since the lifting of the lockdown in summer 2021 and the subsequent increase in the number of coronavirus infections in the population," Professor Vapalahti notes.

## Registers are important sources of data

"The study was based on data from the Finnish Pediatric Diabetes Register," says Mikael Knip, the Principal Investigator in charge of the register.

Since 2002, data and samples from the newly diagnosed children and their [family members](#) have been collected in this national register. The register, maintained by HUS Helsinki University Hospital, covers more than 90% of the patients who have developed [diabetes](#).

"The register is globally unique including both data and [biological samples](#) and provides irreplaceable data for research," Knip concludes.

**More information:** Mikael Knip et al, SARS-CoV-2 and type 1 diabetes in children in Finland: an observational study, *The Lancet Diabetes & Endocrinology* (2023). [DOI:](#)

[10.1016/S2213-8587\(23\)00041-4](https://doi.org/10.1016/S2213-8587(23)00041-4)

Provided by University of Helsinki

Citation: SARS-CoV-2 unlikely to cause type 1 diabetes (2023, March 23) retrieved 27 April 2024 from <https://medicalxpress.com/news/2023-03-sars-cov-diabetes.html>

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