

# Environmental Risk Factors of Long COVID

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## This research at a glance

### Main Questions

What environmental factors raised people's chance of getting Long COVID?

### Answers

In the New York City area, environmental risk factors included:

- Fewer fitness or recreational centers
- Higher levels of air pollution
- More poverty

In Florida, environmental risk factors included:

- Higher levels of air pollution
- More vacant local properties
- Less access to healthy food
- More poverty

The environmental risk factors that raised the chance of getting Long COVID were different in the New York City area than in Florida. Overall, higher levels of air pollution and more poverty were environmental risk factors in both areas.



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### Why was this research needed?

Researchers want to identify environmental risk factors of Long COVID.

**Environmental risk factors** are things about where a person lives that raise their chance of having a health condition, such as air pollution and poor housing conditions.

**Long COVID** is a condition in which a person is sick months after getting COVID. It can cause new, ongoing, or returning symptoms, such as trouble breathing and coughing, and new health conditions, such as diabetes. Long COVID is also called PASC, which stands for post-acute sequelae of COVID.

In this study, researchers wanted to find environmental risk factors of Long COVID by comparing the environment of people who had Long COVID to people who didn't have Long COVID.

**The goal of this research was to answer this question:**

What environmental factors raised people's chance of getting Long COVID?



## What happened during this research?

Researchers used data from electronic health records (EHRs) of 2 different datasets in PCORnet, the National Patient-Centered Clinical Research Networks. The 2 datasets are called:

- **INSIGHT**, which includes people who received health care from certain health systems in the New York City area
- **OneFlorida+**, which includes people who received health care from certain health systems in Florida, Georgia, and Alabama

They looked at environmental risk factors based on the zip code where people lived, including:

- Natural environment, such as different types of air pollutants
- Built environment, such as vacant local properties and access to healthy food
- Social environment, such as poverty

### Whose data was included in this research?

The researchers looked at data from more than 100,000 people who had COVID between March 2020 to October 2021. Within each of the 2 PCORnet datasets, researchers compared 2 groups of people:



#### People who had Long COVID

This included people who had certain new symptoms or health conditions related to Long COVID 1 to 6 months after having COVID



#### People who didn't have Long COVID

This included people who did not have certain new symptoms or health conditions 1 to 6 months after having COVID



## What were the main results?

### What environmental factors raised people's chance of getting Long COVID?

The environmental risk factors that raised the chance of getting Long COVID were different in the New York City area than in Florida. Overall, higher levels of air pollution and more poverty were environmental risk factors in both areas.

In the **New York City area (INSIGHT)**, the environmental risk factors that raised people's chance of getting Long COVID were:



Higher levels of air pollutants, like methyl methacrylate and hydrochloric acid



Fewer fitness or recreational centers



More poverty

In **Florida (OneFlorida+)**, the environmental risk factors that raised people's chance of getting Long COVID were:



Higher levels of air pollutants, like chloroform and organic (carbon-based) substances



Less access to healthy food



More poverty



More vacant local properties



## How has this research helped?

The researchers found that people who lived in areas with higher levels of air pollution, more poverty, and less access to healthy food had a higher chance of getting Long COVID. People in the New York City area had different environmental risk factors than people in Florida.

There were different environmental risk factors for different Long COVID symptoms and health conditions. For example, higher levels of the air pollutant chloroform raised the chance of having a sore throat. And higher levels of the air pollutant methyl methacrylate raised the chance of thinking problems (brain fog).

Future research could help researchers learn about environmental factors in other regions and inform ways to help people recover from COVID, such as adding more plants and trees in an area to improve the air.



## Where can I learn more about this research?

Read the full paper published electronically in *Environment Advances* on February 8, 2023 at [pubmed.ncbi.nlm.nih.gov/36785842/](https://pubmed.ncbi.nlm.nih.gov/36785842/)

**Full paper title:** Identifying environmental risk factors for post-acute sequelae of SARS-CoV-2 infection: An EHR-based cohort study from the recover program

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## About RECOVER

RECOVER is a research project that aims to learn about the long-term health effects of COVID. We're hopeful that this project will help us better prevent and treat Long COVID in the future. RECOVER is paid for by the National Institutes of Health (NIH).

Learn more at: [RECOVERcovid.org](https://RECOVERcovid.org)