



COVID-19

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Long COVID or Post-COVID Conditions

Updated July 20, 2023

DEFINITION

Long COVID

Some people who have been infected with the virus that causes COVID-19 can experience long-term effects from their infection, known as Long COVID or Post-COVID Conditions (PCC). Long COVID is broadly defined as signs, symptoms, and conditions that continue or develop after acute COVID-19 infection. This [definition](#) of Long COVID was developed by the Department of Health and Human Services (HHS) in collaboration with CDC and other partners.

People call Long COVID by many names, including Post-COVID Conditions, long-haul COVID, post-acute COVID-19, long-term effects of COVID, and chronic COVID. The term post-acute sequelae of SARS CoV-2 infection (PASC) is also used to refer to a subset of Long COVID.

What You Need to Know

- Long COVID can include a wide range of ongoing health problems; these conditions can last weeks, months, or years.
- Long COVID occurs more often in people who had severe COVID-19 illness, but anyone who has been infected with the virus that causes COVID-19 can experience it.
- People who are not vaccinated against COVID-19 and become infected may have a higher risk of developing Long COVID compared to people who have been vaccinated.
- People can be reinfected with SARS-CoV-2, the virus that causes COVID-19, multiple times. Each time a person is infected or reinfected with SARS-CoV-2, they have a risk of developing Long COVID.
- While most people with Long COVID have evidence of infection or COVID-19 illness, in some cases, a person with Long COVID may not have tested positive for the virus or known they were infected.
- CDC and partners are working to understand more about who experiences Long COVID and why, including whether groups disproportionately impacted by COVID-19 are at higher risk.

In July 2021, Long COVID was added as a recognized condition that could result in a disability under the Americans with Disabilities Act (ADA). Learn more: [Guidance on “Long COVID” as a Disability Under the ADA](#).

About Long COVID

Long COVID is a wide range of new, returning, or ongoing health problems that people experience after being infected with the virus that causes COVID-19. Most people with COVID-19 get better within a few days to a few weeks after infection, so at least 4 weeks after infection is the start of when Long COVID could first be identified. Anyone who was infected can experience Long COVID. Most people with Long COVID experienced symptoms days after first learning they had COVID-19, but some people who later experienced Long COVID did not know when they got infected.

There is no test that determines if your symptoms or condition is due to COVID-19. Long COVID is not one illness. Your healthcare provider considers a diagnosis of Long COVID based on your health history, including if you had a diagnosis of COVID-19 either by a positive test or by symptoms or exposure, as well as based on a health examination.

Science at CDC

Scientific evidence and studies behind Long COVID

[Science behind Long COVID](#)

How to Get Involved in Long COVID Research

The National Institutes of Health (NIH) is conducting a research project, called the RECOVER Initiative, to understand how people recover from a COVID-19 infection and why some people do not fully recover and develop Long COVID.

[RECOVER: Researching COVID to Enhance Recovery](#) 

Symptoms

People with Long COVID may experience many symptoms.

People with Long COVID can have a wide range of symptoms that can last weeks, months, or even years after infection. Sometimes the symptoms can even go away and come back again. For some people, Long COVID can last weeks, months, or years after COVID-19 illness and can sometimes result in disability.

Long COVID may not affect everyone the same way. People with Long COVID may experience health problems from different types and combinations of symptoms that may emerge, persist, resolve, and reemerge over different lengths of time. Though most patients' symptoms slowly improve with time, speaking with your healthcare provider about the symptoms you are experiencing after having COVID-19 could help determine if you might have Long COVID.

People who experience Long COVID most commonly report:

General symptoms (*Not a Comprehensive List*)

- Tiredness or fatigue that interferes with daily life
- Symptoms that get worse after physical or mental effort (also known as “[post-exertional malaise](#)”)
- Fever

Respiratory and heart symptoms

- Difficulty breathing or shortness of breath
- Cough
- Chest pain
- Fast-beating or pounding heart (also known as heart palpitations)

Neurological symptoms

- Difficulty thinking or concentrating (sometimes referred to as “brain fog”)
- Headache
- Sleep problems
- Dizziness when you stand up (lightheadedness)
- Pins-and-needles feelings
- Change in smell or taste
- Depression or anxiety

Digestive symptoms

- Diarrhea
- Stomach pain

Other symptoms

- Joint or muscle pain
- Rash
- Changes in menstrual cycles

Symptoms that are hard to explain and manage

Some people with Long COVID have symptoms that are not explained by tests or easy to manage.

People with Long COVID may develop or continue to have symptoms that are hard to explain and manage. Clinical evaluations and results of routine blood tests, chest X-rays, and electrocardiograms may be normal. The symptoms are similar to those reported by people with [myalgic encephalomyelitis/chronic fatigue syndrome \(ME/CFS\)](#) and other poorly understood chronic illnesses that may occur after other infections. People with these unexplained symptoms may be misunderstood by their healthcare providers, which can result in a delay in diagnosis and receiving the appropriate care or treatment.

[Review these tips](#) to help prepare for a healthcare provider appointment for Long COVID.

Health conditions

Some people experience new health conditions after COVID-19 illness.

Some people, especially those who had severe COVID-19, experience multiorgan effects or autoimmune conditions with symptoms lasting weeks, months, or even years after COVID-19 illness. Multi-organ effects can involve many body systems, including the heart, lung, kidney, skin, and brain. As a result of these effects, people who have had COVID-19 may be more likely to develop new health conditions such as diabetes, heart conditions, blood clots, or neurological conditions compared with people who have not had COVID-19.

People experiencing any severe illness may develop health problems

People experiencing any severe illness, hospitalization, or treatment may develop problems such as post-intensive care syndrome (PICS).

PICS refers to the health effects that may begin when a person is in an intensive care unit (ICU), and which may persist after a person returns home. These effects can include muscle weakness, problems with thinking and judgment, and symptoms of [post-traumatic stress disorder](#) (PTSD), a long-term reaction to a very stressful event. While PICS is not specific to infection with SARS-CoV-2, it may occur and contribute to the person’s experience of Long COVID. For people who experience PICS following a COVID-19 diagnosis, it is difficult to determine whether these health problems are caused by a severe illness, the virus itself, or a combination of both.

People More Likely to Develop Long COVID

Some people may be more at risk for developing Long COVID.

Researchers are working to understand which people or groups of people are more likely to have Long COVID, and why. Studies have shown that some groups of people may be affected more by Long COVID. These are examples and not a comprehensive list of people or groups who might be more at risk than other groups for developing Long COVID:

- People who have experienced more severe COVID-19 illness, especially those who were hospitalized or needed intensive care.
- People who had underlying health conditions prior to COVID-19.
- People who did not get a COVID-19 vaccine.

Health Inequities May Affect Populations at Risk for Long COVID

Some people are at increased risk of getting sick from COVID-19 because of where they live or work, or because they can't get health care. [Health inequities](#) may put some people from racial or ethnic minority groups and some people with disabilities at greater risk for developing Long COVID. Scientists are researching some of those factors that may place these communities at higher risk of getting infected or developing Long COVID.

Preventing Long COVID

The best way to prevent Long COVID is to [protect yourself and others](#) from becoming infected. For people who are eligible, [CDC recommends staying up to date on COVID-19 vaccination](#), along with improving ventilation, getting tested for COVID-19 if needed, and seeking treatment for COVID-19 if eligible. Additional preventative measures include avoiding close contact with people who have a confirmed or suspected COVID-19 illness and [washing hands](#) or using alcohol-based hand sanitizer.

Research suggests that people who get a COVID-19 infection after vaccination are less likely to report Long COVID, compared to people who are unvaccinated.


CDC, other federal agencies, and non-federal partners are working to identify further measures to lessen a person's risk of developing Long COVID. Learn more about [protecting yourself and others from COVID-19](#).

Living with Long COVID

Living with Long COVID can be hard, especially when there are no immediate answers or solutions.

People experiencing Long COVID can seek care from a healthcare provider to come up with a personal medical management plan that can help improve their symptoms and quality of life. [Review these tips](#) to help prepare for a healthcare provider appointment for Long COVID. In addition, there are many support groups being organized that can help patients and their caregivers.

Although Long COVID appears to be less common in children and adolescents than in adults, long-term effects after COVID-19 do occur in [children and adolescents](#).


 **Talk to your doctor** if you think you or your child has Long COVID. Learn more: [Tips for Talking to Your Healthcare Provider about Post-COVID Conditions](#)

Data for Long COVID

Studies are in progress to better understand Long COVID and how many people experience them.

CDC is using multiple approaches to estimate how many people experience Long COVID. Each approach can provide a piece of the puzzle to give us a better picture of who is experiencing Long COVID. For example, some studies look for the presence of Long COVID based on self-reported symptoms, while others collect symptoms and conditions recorded in medical records. Some studies focus only on people who have been hospitalized, while others include people who were not hospitalized. The estimates for how many people experience Long COVID can be quite different depending on who was included in the study, as well as how and when the study collected information. **Estimates of the proportion of people who had COVID-19 that go on to experience Long COVID can vary.**

CDC posts data on Long COVID and provides analyses, the most recent of which can be found on the [U.S. Census Bureau's Household Pulse Survey](#).

CDC and other federal agencies, as well as academic institutions and research organizations, are working to learn more about the short- and long-term [health effects associated with COVID-19](#) , who gets them and why.

Scientists are also learning more about how new variants could potentially affect Long COVID. We are still learning to what extent certain groups are at higher risk, and if different groups of people tend to experience different types of Long COVID. CDC has [several studies](#) that will help us better understand Long COVID and how healthcare providers can treat or support patients with these long-term effects. CDC will continue to share information with healthcare providers to help them evaluate and manage these conditions.

CDC is working to:

- Better identify the most frequent symptoms and diagnoses experienced by patients with Long COVID.
- Better understand how many people are affected by Long COVID, and how often people who are infected with COVID-19 develop Long COVID
- Better understand risk factors and protective factors, including which groups might be more at risk, and if different groups experience different symptoms.
- Help understand how Long COVID limit or restrict people's daily activity.
- Help identify groups that have been more affected by Long COVID, lack access to care and treatment for Long COVID, or experience stigma.
- Better understand the role vaccination plays in preventing Long COVID.
- Collaborate with professional medical groups to develop and offer clinical guidance and other educational materials for healthcare providers, patients, and the public.

Related Pages

- › [Caring for People with Post-COVID Conditions](#)
- › [Preparing for Appointments for Post-COVID Conditions](#)
- › [Researching COVID to Enhance Recovery](#) 
- › [Guidance on "Long COVID" as a Disability Under the ADA](#) 

For Healthcare Professionals

- › [Post-COVID Conditions: Healthcare Providers](#)

Archived Content

Search for and find historical COVID-19 pages and files. Please note the content on these pages and files is no longer being updated and may be out of date.

- Visit archive.cdc.gov for a historical snapshot of the COVID-19 website, capturing the end of the Federal Public Health Emergency on June 28, 2023.
- Visit the [dynamic COVID-19 collection](#) to search the COVID-19 website as far back as July 30, 2021.

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