



COVID Research at Sri Jayawardanepura University

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**M**ore than 190 million people have developed COVID-19 since late 2019, according to the World Health Organization (WHO). Many other people have likely had the disease but never received a confirmed test result.

You may have had COVID-19 already without knowing it, although it's impossible to know for sure unless you undergo an antibody test. And even a positive antibody test comes with a small chance of a false positive.

The most likely way to know that you had COVID-19 is if you had typical COVID-19 symptoms and received a positive diagnostic COVID-19 test when you were sick. But even "gold standard" PCR tests come with a chance of a false negative result, meaning you have COVID-19, but the test results indicate you do not.

If you didn't receive a positive COVID-19 test when you were sick, it's harder to know if you had the disease.

There are no sure signs that you already had COVID-19. But there are some general symptoms you may have experienced, such as

- pink eye
- loss of taste or smell
- Fatigue

**Signs that you may have already had COVID-19**

COVID-19 can affect many different parts of your body and cause general symptoms that have many potential causes. Some people with COVID-19 don't develop any symptoms.

It's impossible to know if you had an infection for sure without a positive COVID-19 test, but here are some of the potential signs.

Everybody experiences COVID-19 differently, and symptoms can mimic those of other respiratory infections. If you developed any of the most typical COVID-19 symptoms, especially after being in close contact with a person who had COVID-19, it may be a sign that you had it, too.

According to the Centers for Disease Control and Prevention (CDC), the following are the most reported symptoms:

- body aches
- stuffy nose or runny nose
- cough
- diarrhoea
- fatigue
- fever or chills
- headache
- nausea
- new loss of taste or smell
- shortness of breath or trouble breathing
- sore throat

*COVID-19 symptoms often show up in a particular order. In a 2020 study published by the Southern California University (USC), researchers analysed the development of symptoms in 55,000 people with COVID-19 and compared them to the symptoms of 2,000 people with influenza. They found that influenza most commonly started with a cough, while the initial symptom of COVID-19 was most likely to be a fever.*

●vomiting  
COVID-19, the common cold, and flu can be difficult to tell apart. Sneezing isn't a symptom of COVID-19 and may indicate you had a cold or allergies. Shortness of breath isn't a typical flu symptom but is one of the more common COVID-19 symptoms.

COVID-19 is thought to enter your cells through receptors for the enzyme called angiotensin converting enzyme 2 (ACE2). The virus enters these receptors by tricking your body into thinking it's the ACE2 enzyme.

ACE2 receptors are found in various parts of your eyes, such as your retina and the epithelial cells that line your eye white and eyelid.

Some people with COVID-19 develop eye symptoms like:

- dry eyes
- pink eye
- swelling
- excessive tearing
- increased eye secretions

Eye symptoms are usually accompanied



Genome sequencing at Sri Jayawardanepura University

by more typical COVID-19 symptoms, but they may appear alone in some people.

**You temporarily lost your sense of taste or smell**

Loss of taste or smell is commonly reported in people with COVID-19. A review of studies found that loss of taste or smell was reported in 47 percent of people and was most common in people with mild to moderate disease.

Some people with COVID-19 also experience a distortion of these senses. Symptoms affecting taste or smell seem to often appear before other symptoms.

An August 2020 study found that in a group of 11,054 people with COVID-19, symptoms affecting smell and taste appeared before general symptoms in 64.5 and 54 percent of cases, respectively.

**You developed fever first**

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They found that influenza most commonly started with a cough, while the initial symptom of COVID-19 was most likely to be a fever.

A wide range of initial symptoms of COVID-19 has been reported in scientific literature. Just because you didn't develop a fever first doesn't necessarily mean you didn't have COVID-19.

**You're experiencing long-haul symptoms**

Some people who develop COVID-19 have symptoms that persist for weeks or months after their infection. These symptoms have been referred to as long-haul symptoms.

Young adults, children, and even people with mild disease can develop long-haul symptoms. It's not clear why some people develop long-haul symptoms, but it's thought long-term tissue damage and inflammation may play a role. Some of the most reported symptoms include:

- ◆chronic fatigue
- ◆trouble breathing
- ◆brain fog or cognitive impairment
- ◆chest or joint pain
- ◆lingering headaches
- ◆lingering cough
- ◆heart palpitations
- ◆muscle pain
- ◆smell or taste dysfunction
- ◆gastrointestinal issues
- ◆other heart issues

In a review of studies published in Cochrane, researchers analysed the results of 64 studies and 24,087 nose or throat samples. The researchers found commercially available point-of-care antigen tests correctly identified confirmed COVID-19 infections in 72 percent of people with symptoms and 58 percent of people without symptoms.

The tests were most accurate during the first week of infection.

In people without COVID-19, the tests correctly identified a negative result in 99.5 percent of people.

It's impossible to know if you had COVID-19 judging by your symptoms alone, since most typical symptoms can also be signs of other respiratory infections.

The most likely way to know if you've had COVID-19 is if you had typical COVID-19 symptoms and a positive diagnostic test result when you were sick. A positive antibody test can also indicate that you previously had COVID-19.

No COVID-19 test is 100 percent accurate. Even if you tested negative for COVID-19 with a diagnostic or antibody test, there's still a small chance that you received a false negative; meaning it was inaccurate.

The symptoms of COVID-19, including fever and cough, are similar to the symptoms in a host of other common diseases, including the seasonal flu.

With flu season in full swing, how can you tell if a fever is a symptom of the flu or COVID-19? A new study has shed light on how COVID-19 symptoms present, which may help people trying to figure out if their cough is just a cough or something worse.

The research from the USC was able to determine that COVID-19 symptoms often start in a certain order.

This finding might help people with COVID-19 self-isolate and get treatment sooner, which could significantly improve patient outcomes.

"This order is especially important to know when we have overlapping cycles of illnesses like the flu that coincide with infections of COVID-19," said Peter Kuhn, PhD, one of the study authors and professor of medicine, biomedical engineering, and aerospace and mechanical engineering at the USC. "Doctors can determine what steps to take to care for the patient, and they may prevent the patient's condition from worsening."

To predict the order of symptoms, researchers analysed rates of symptom incidence collected by the WHO for over 55,000 confirmed COVID-19 cases in China.

They also looked at a data set of almost 1,100 cases collected between December 2019 and January 2020 by the China Medical Treatment Expert Group for COVID-19 and provided by the National Health Commission of China.

To compare the order of COVID-19 symptoms to influenza, the researchers analysed data from over 2,000 influenza cases in North America, Europe, and the Southern Hemisphere reported to health authorities between 1994 and 1998.

"The order of the symptoms matter," said Joseph Larsen, lead study author and USC Dornsife doctoral candidate. "Knowing that each illness progresses differently means that doctors can identify sooner whether someone likely has COVID-19, or another illness, which can help them make better treatment decisions."

(Healthline)



**Currently, commercially available COVID-19 tests only indicate whether you have COVID-19. They don't tell you if you have a particular variant. A COVID-19 sample needs to undergo a process called genomic sequencing for health professionals to identify variants.**

**Is it possible to tell if you had a variant of COVID-19?**

There are four notable COVID-19 variants in the United States named after the first four letters of the Greek alphabet:

- Alpha
- Beta
- Gamma
- Delta
- Lambda

These variants seem to spread quicker than standard COVID-19, but the symptoms seem to be similar. For example, a May 2021 study found that the Alpha variant wasn't linked to a change in self-reported symptoms among people in the United Kingdom.

Some variants may cause certain symptoms more often than other variants. Early research published by the Edinburgh University has found that the Delta variation is associated with an increased risk of hospitalisation.

According to the Food and Drug Administration (FDA), the presence of COVID-19 variants in a testing sample may potentially impair the results of some COVID-19 tests. Most tests should still be accurate, but the FDA continues to monitor tests that may be impacted.

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Some rapid antigen COVID-19 tests can provide results in minutes. However, they come with a relatively high chance of receiving inaccurate results.



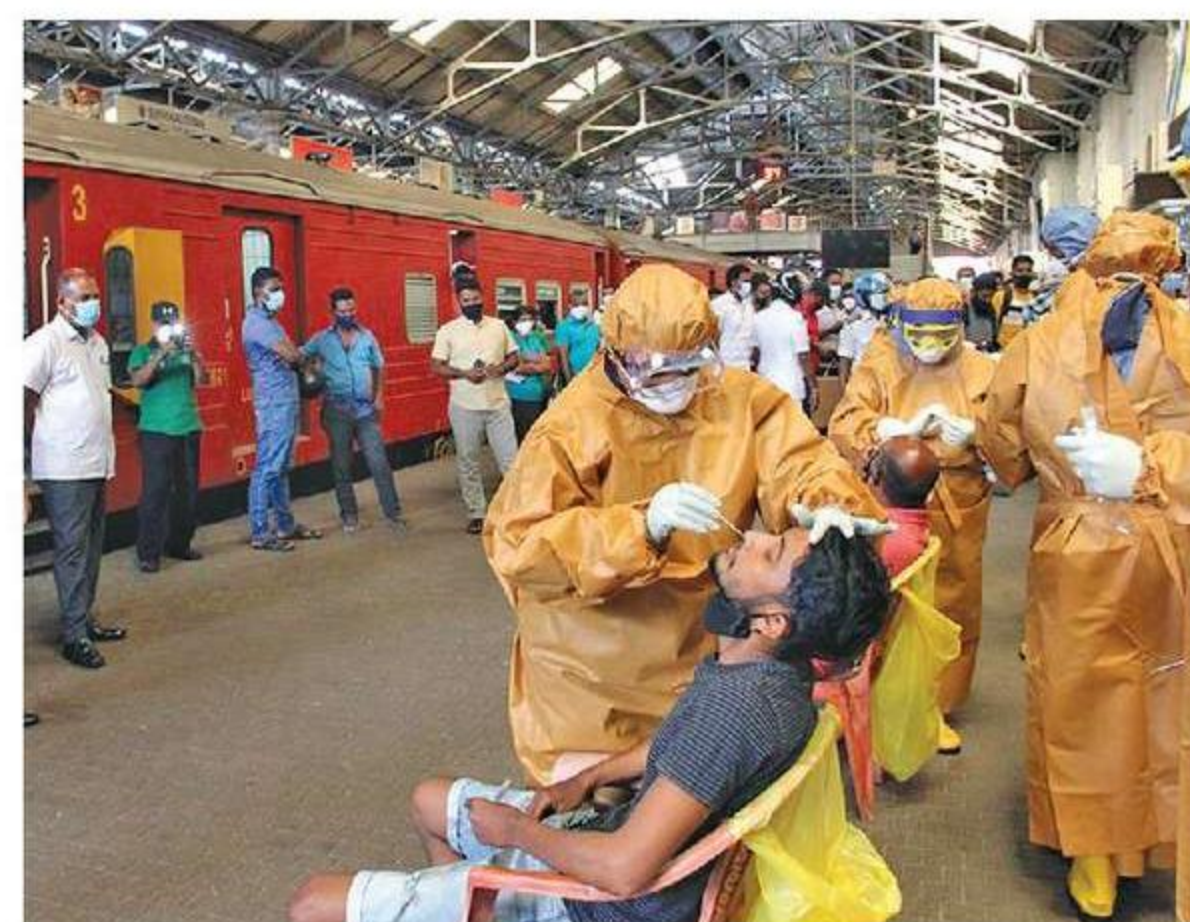
Vaccination in progress in Sri Lanka



A patient in India getting Oxygen



A queue for vaccination in Sri Lanka



PCR Tests being conducted in Sri Lanka