

# Even mild COVID might change your brain

February 21 2023, by Cara Murez

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People who are experiencing anxiety and depression months after a mild case of COVID-19 may have changes affecting the structure and function of their brains, Brazilian researchers report.

"There is still much to learn about long COVID, which includes a wide range of health problems, including [anxiety](#) and depression, months after infection," said [Dr. Clarissa Yasuda](#) of the University of Campinas in São Paulo.

"Our findings are concerning, as even people with a mild case of COVID-19 are showing changes in their brains months later. More studies are needed to hopefully identify treatments to prevent any long-term effects on people's quality of life," she added.

To understand this, the researchers studied 254 people who had a mild COVID-19 infection. On average, the patients were 41 years old and had COVID-19 three months earlier.

Each participant completed tests of anxiety or [depression symptoms](#) and had [brain scans](#).

In all, 102 people had symptoms of both anxiety and depression and 152 people had none, the investigators found.

The researchers then looked for evidence of shrinkage in the [brain](#)'s gray matter. Scans were compared with those of 148 people who had not had COVID-19.

Those who had COVID-19 and were experiencing anxiety and depression had shrinkage in the limbic area of the brain, which is involved in memory and emotional processing. Those who had no symptoms of anxiety and depression after COVID-19 had no brain shrinkage, the study authors said.

Using a special type of software to analyze networks with resting-state brain activity, the researchers also looked at [brain function](#) and changes in connectivity between areas of the brain.

They did this in 84 people from the group with no symptoms; 70 people from the anxiety and depression group; and 90 people who did not have COVID-19. The researchers found widespread functional changes in each of the 12 networks they tested in the group with anxiety and depression symptoms.

The COVID group without symptoms also had changes, but in five rather than 12 networks.

"Our results suggest a severe pattern of changes in how the brain communicates as well as its structure, mainly in people with anxiety and [depression](#) with long COVID syndrome, which affects so many people," Yasuda said in a news release from the American Academy of Neurology. "The magnitude of these changes suggests that they could lead to problems with memory and thinking skills, so we need to be exploring holistic treatments even for people mildly affected by COVID-19."

The findings were made public Feb. 20 in advance of their presentation in Boston and online at an American Academy of Neurology meeting April 22 to 27.

Research presented at meetings should be considered preliminary until published in a peer-reviewed journal.

**More information:** The U.S. Centers for Disease Control and Prevention has [more on long COVID](#).

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