

loading

[Skip to main content](#)

- [U.S. Department of Health & Human Services](#)

Search the NIH Website

Search

- [NIH Employee Intranet](#)
- [Staff Directory](#)
- [En Español](#)

SearchMenu

## Site Menu

- [Home](#)Show/hide sub-menu

- [Health Information](#)Show/hide sub-menu
  - [Health Care Providers & Facilities](#)(link is external)
  - [Health Info Lines](#)
  - [HealthCare.gov](#)(link is external)
  - [Science Education Resources](#)
  - [NIH Clinical Research Trials and You](#)
  - [Talking to Your Doctor](#)

[More »](#)

Search Health Topics

Quick Links

- [MedlinePlus Health Info](#)
- [NIH News in Health](#)
- [Wellness Toolkits](#)
- [Grants & Funding](#)Show/hide sub-menu
  - [Grants Home Page](#)
  - [Find Funding](#)
  - [Due Dates](#)
  - [How to Apply](#)
  - [About Grants](#)
  - [Policy & Compliance](#)
  - [Grants News/Blog](#)
  - [Contracts](#)
  - [Loan Repayment](#)

[More »](#)

Search the NIH Guide

Quick Links

- [RePORT](#)
- [eRA Commons](#)
- [NIH Common Fund](#)
- [News & Events](#)Show/hide sub-menu
  - [News Releases](#)
  - [Digital Media Kits](#)
  - [Media Resources](#)

- [Media Contacts](#)
- [Images and B-roll](#)
- [Events](#)
- [Social Media](#)

[More »](#)

#### Quick Links

- [NIH News in Health](#)
- [NIH Research Matters](#)
- [NIH Record](#)
- [Research & Training](#)Show/hide sub-menu
  - [Medical Research Initiatives](#)
  - [Science Highlights](#)
  - [Science Education](#)
  - [Research in NIH Labs & Clinics](#)
  - [Training Opportunities](#)
  - [Library Resources](#)
  - [Research Resources](#)
  - [Clinical Research Resources](#)
  - [Safety, Regulation and Guidance](#)

[More »](#)

#### Quick Links

- [PubMed](#)
- [Stem Cell Information](#)
- [OppNet](#)
- [NIDB](#)
- [NIH Blueprint for Neuroscience Research](#)
- [Institutes at NIH](#)Show/hide sub-menu
  - [List of Institutes, Centers & Offices](#)
  - [NIH Office of the Director](#)
  - [Directors of NIH Institutes and Centers](#)
  - [NIH Institute and Center Contact Information](#)

[More »](#)

#### Quick Links

- [NCI](#)
- [NEI](#)
- [NHLBI](#)
- [NHGRI](#)
- [NIA](#)

- [NIAAA](#)
- [NIAID](#)
- [NIAMS](#)
- [NIBIB](#)
- [NICHD](#)
- [NIDCD](#)
- [NIDCR](#)
- [NIDDK](#)
- [NIDA](#)
- [NIEHS](#)
- [NIGMS](#)
- [NIMH](#)
- [NIMHD](#)
- [NINDS](#)
- [NINR](#)
- [NLM](#)
- [CC](#)
- [CIT](#)
- [CSR](#)
- [FIC](#)
- [NCATS](#)
- [NCCIH](#)
- [OD](#)
- [About NIH](#) Show/hide sub-menu
  - [Who We Are](#)
  - [What We Do](#)
  - [Jobs at NIH](#)
  - [Visitor Information](#)
  - [Frequently Asked Questions](#)
  - [Contact Us](#)

[More »](#)

#### Quick Links

- [The NIH Director](#)
- [The NIH Almanac](#)
- [NIH...Turning Discovery Into Health<sup>®</sup>](#)
- [Impact of NIH Research](#)
- [Science, Health, and Public Trust](#)

## COVID-19

- [Public health information from CDC](#)

- [Research information from NIH | Español](#)
- [NIH staff guidance on coronavirus \(NIH Only\)](#)

Hide emergency message

## You are here

[Home](#) » [News & Events](#) » [News Releases](#)

## [News Releases](#)

Media Advisory

Thursday, January 20, 2022

# Researchers highlight COVID-19 neurological symptoms and need for rigorous studies

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## What

SARS-CoV-2 was initially identified as a respiratory virus, but it can affect the entire body, including the nervous system. In a new Viewpoint published in *Science*, Avindra Nath, M.D., clinical director of the National Institutes of Health's National Institute of Neurological Disorders and Stroke (NINDS), and Serena Spudich, M.D., Yale School of Medicine, New Haven, Connecticut, highlight what is currently known about the effects of SARS-CoV-2 on the brain, the importance of increased research into the underlying causes of Long Covid and possible ways to treat its symptoms.

Neurological symptoms that have been reported with acute COVID-19 include loss of taste and smell, headaches, stroke, delirium, and brain inflammation. There does not seem to be extensive infection of brain cells by the virus, but the neurological effects may be caused by immune activation, neuroinflammation, and damage to brain blood vessels.

Acute COVID-19 infection can sometimes lead to long-lasting effects, that have collectively been termed "Long Covid," and can include a wide variety of symptoms in the brain and nervous system that range from a loss of taste and smell, impaired concentration, fatigue, pain, sleep disorders, autonomic disorders and/or headache to psychological effects such as depression or psychosis.

Drs. Nath and Spudich outline the current scientific understanding of the potential body responses to acute COVID-19 infection and how those responses could lead to Long Covid symptoms. They also draw parallels between the symptoms experienced by individuals with Long Covid to those living with myalgic encephalomyelitis/chronic fatigue syndrome (ME/CFS) or post-Lyme disease, which suggests there could be common risk factors involved.

Finally, owing to the significant variability in symptoms from person to person and the fact that many

individuals with Long Covid were healthy prior to a relatively mild COVID-19 infection, the authors highlight the urgent need for significant research efforts into identifying the full extent of Long Covid complications and their causes. This kind of research, which would include the careful study of individuals with Long Covid categorized by their specific symptoms, is crucial to the development of diagnostic and therapeutic tools to identify and treat what is becoming an ever-increasing public health concern. The NIH [RECOVER\(link is external\)](#) COVID initiative is an ambitious research program to reach these goals.

## Who

Avindra Nath, M.D., clinical director, NINDS. To arrange an interview, please contact [NINDSPressTeam@ninds.nih.gov\(link sends e-mail\)](mailto:NINDSPressTeam@ninds.nih.gov).

## Article

Spudich S. and Nath A. “Nervous system consequences of COVID-19” *Science*. January 21, 2022. DOI: [10.1126/science.abm2052\(link is external\)](https://doi.org/10.1126/science.abm2052).

[NINDS](#) is the nation’s leading funder of research on the brain and nervous system. The mission of NINDS is to seek fundamental knowledge about the brain and nervous system and to use that knowledge to reduce the burden of neurological disease.

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[National Institute of Neurological Disorders and Stroke \(NINDS\)](#)

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- [YouTube\(link is external\)](#)
- [Flickr\(link is external\)](#)
- [More Social Media from NIH](#)

## Footer

- [NIH Home](#)
- [En Español](#)
- [Site Map](#)
- [Visitor Information](#)
- [Frequently Asked Questions](#)
- [Web Policies and Notices](#)
- [NIH Website Archives](#)
  
- [Freedom of Information Act](#)
- [No Fear Act](#)
- [HHS Vulnerability Disclosure\(link is external\)](#)
- [Office of Inspector General\(link is external\)](#)
- [USA.gov – Government Made Easy\(link is external\)](#)

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[Back to Top](#)