

I have long COVID so found this very interesting. It helped me to understand some of the symptoms that I am feeling. Brain fog is one of them. Mike

**From Epoch Times**

## **Jab Injuries, 50% Long COVID Cases Have This Type of Symptom—2 Ways to Reverse It**

Many people experience “[long COVID](#)” symptoms after an acute attack of COVID-19 infection. Half of them are neuropsychiatric and show obvious symptoms. How do COVID-19 infections damage the brain and nerves?

There are two ways to improve these damages.

### **Half of All Long COVID Cases Have Psychiatric and Neurological Symptoms**

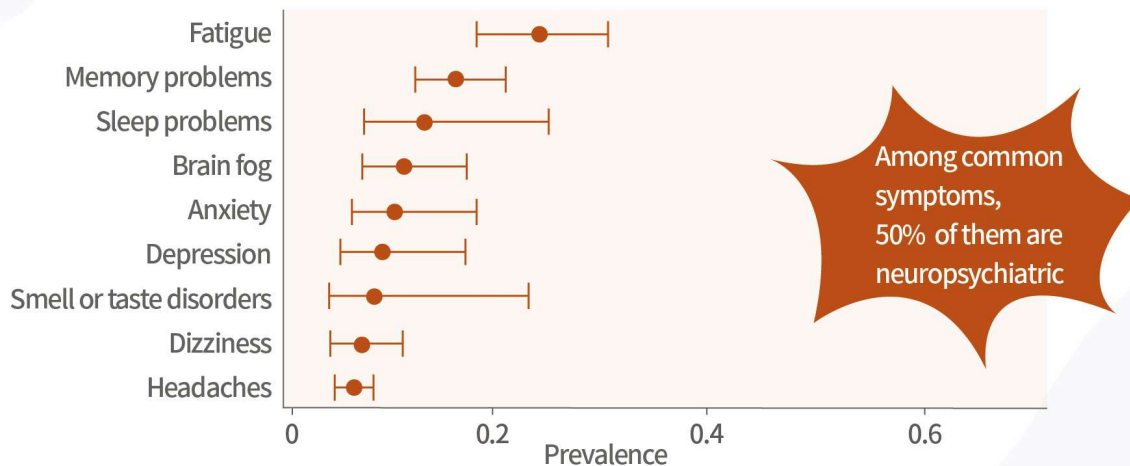
According to a [study](#) published in the Journal of Infectious Diseases in 2022, among the top 18 symptoms of long COVID, 50 percent of them are neuropsychiatric ones, including memory problems, sleep problems, brain fog, anxiety, depression, smell or taste disorders, dizziness, and headaches.

An [article](#) in the journal Science suggests that vaccination may also cause rare symptoms similar to those of long COVID.

These symptoms can have a significant impact on people’s daily work and life.

To find effective solutions, we first need to understand how the SARS-CoV-2 virus damages one's neuropsychiatric system.

### Common Neuropsychiatric Symptoms of the Long COVID



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Source: Journal of Infectious Diseases

## The SARS-CoV-2 Virus Can Cross the 'Blood-brain Barrier' and Attack the Brain

First, the SARS-CoV-2 virus can enter the brain.

In healthy people, the brain is firmly protected by the blood-brain barrier, so harmful substances and immune cells generally cannot break into the brain under healthy conditions.

However, in an [article](#) published in The Lancet Neurology, a neuropathological analysis of the brains of 43 patients who passed away due to COVID-19 found that most of them had inflammation and immune activation in the brain. Eighty-six percent of the patients had astrocyte proliferation in all areas of the brain that were examined. These cells usually accumulate at the sites of neuronal damage, and an abnormal presence of immune cells was found in the brains of 76 percent of the patients.

These immune triggered pathological changes are expected. However, what is more surprising is that SARS-CoV-2 virus proteins were directly detectable in the different brain regions of 53 percent of these patients, including the neuronal center controlling respiratory and cardiac functions in the lower part of brainstem (connective part between cerebrum and spinal cord).

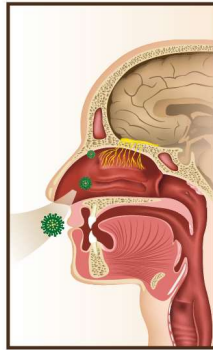
Furthermore, [experiments](#) with primates have also shown that the SARS-CoV-2 virus can directly damage nerve cells, causing them to degenerate and even die.

How does the SARS-CoV-2 virus cross the blood-brain barrier and infect the brain and nerve cells? Currently, there are three theories that are widely discussed and even accepted by the academic community:

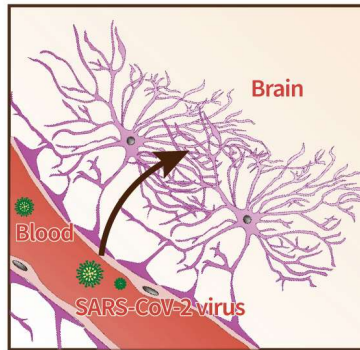
1. After being inhaled into the nasal cavity, the virus binds to ACE2 receptors in the olfactory nerve terminals and thus enters the central nervous system in a way of reverse axonal transportation.
2. After the virus enters the endothelial cells of the blood vessels, it could be released by these cells, enter into other cell layers, and then finally break through the blood-brain barrier.
3. The virus enters into the immune cells in the peripheral blood and “rides” on them to cross the blood-brain barrier like soldiers in a Trojan horse.

## Three Theories of SARS-CoV-2 Virus' s Invasion of the Brain

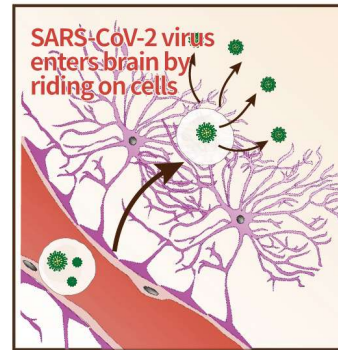
1. Infection through the nose



2. Crossing the blood-brain barrier



3. 'Trojan horse'



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What will the virus do to the neurons then?

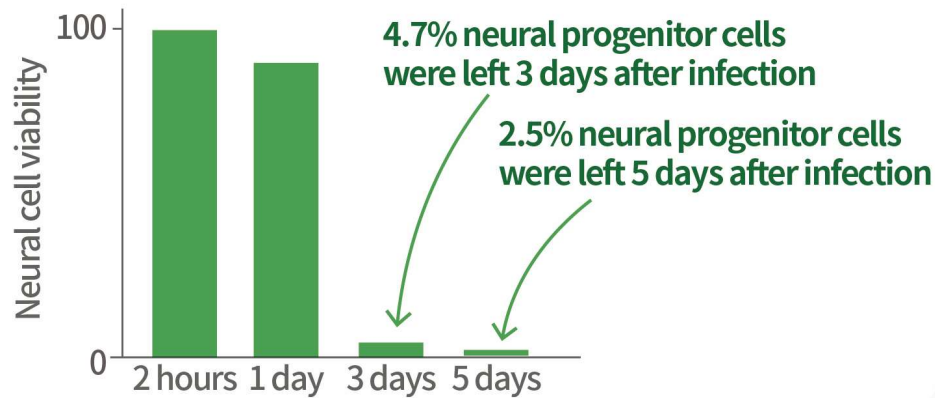
### Experiment: 3 Days after COVID Infection, Only 5 Percent of Neural Progenitor Cells Were Left

A [study](#) published in the journal Cell Research found that the SARS-CoV-2 virus not only replicates in neuronal cells, but also causes the apoptosis (cell death) of neural progenitor cells. Only less than 5 percent of neural progenitor cells survived for 3 days after the COVID infection, and the percentage dropped to less than 2.5 percent after five days.

Why does the SARS-CoV-2 virus cause such severe damages to neural cells? The mechanism of the SARS-CoV-2 virus's damage to nerves is summarized in a [review](#) published in the journal Nature.

In addition to directly affecting the brain and nerve cells, inducing cell death, the SARS-CoV-2 virus can attack blood vessels, causing ischemia (restricting blood flow) and hypoxia (lack of oxygen) in the brain; the antibodies to the virus can also bind to the normal brain components, resulting in autoimmune attacks on the brain nerves.

## Nerve Damages Caused by COVID-19



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Source: Nature

Furthermore, we have summarized before that the COVID disease can cause cytokine storms resulting in inflammation in the nervous system; and they can damage the mitochondria of nerve cells and lipid metabolism disorder. We explained these in detail in the article [Why Long COVID and Vaccine Injuries Look so Similar: Expert Explains.](#)

### SARS-CoV-2 Virus Inhibits 'Autophagy,' Affects Brain's Self-Renewal

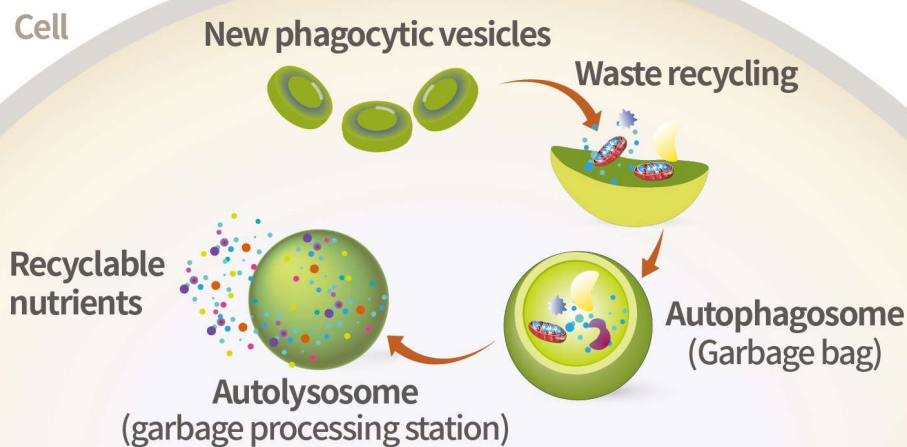
In addition to these reasons, a [recent article](#) published in the journal Developmental Cell found that the SARS-CoV-2 virus can inhibit the cells' autophagic process.

The concept of autophagy was first introduced in 1974 by Belgian cell and biochemist Christian de Duve, who was awarded the Nobel Prize in Physiology or Medicine.

Literally, autophagy means "eating oneself." It is an important physiological mechanism for cells to digest and reuse waste products and to renew themselves.

During the process of autophagy, an autophagosome is first produced in the cell, and it acts as a “garbage bag” to wrap the various waste products in the cell. The “garbage bag” will have to fuse with a lysosome (loads of enzymes to break down the garbage) to form a “garbage processing station” called an autolysosome, which will break down and recycle the wrapped waste materials.

## A Cell Devouring Its Wastes and Toxins



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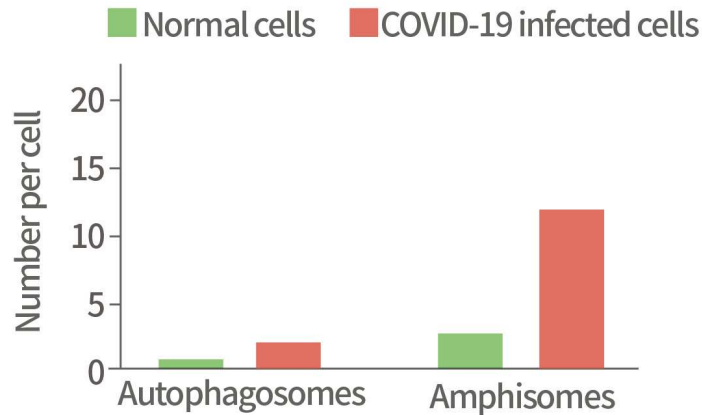
Source: the EMBO Journal

Autophagy is an important physiological mechanism that not only removes harmful components from cells in a timely manner, but also transforms useless proteins into recyclable amino acids. This brings a variety of benefits to the body, including anti-aging benefits, reduced inflammatory status, boosted immunity, and reduced cancer risk.

In cells infected with the SARS-CoV-2 virus, the formation of autolysosomes has been blocked, substantially resulting in many more garbage bags but reduced processing ability. SARS-CoV-2 virus blocks the formation of autolysosomes, and prevents the timely recycling of waste and harmful substances in the cells.



## SARS-CoV-2 Virus Inhibits Autophagic Activity

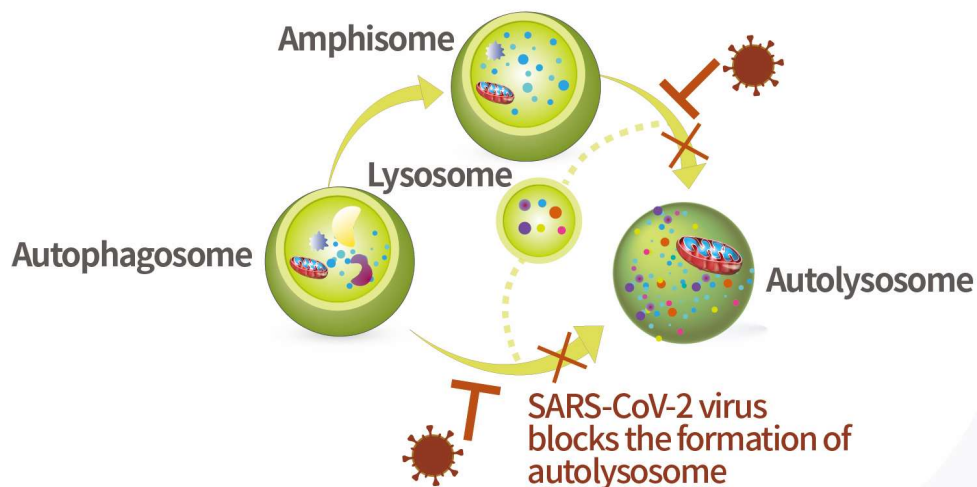


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Source: Developmental Cell

In addition, the inhibition of autophagy leads to the accumulation of undigested viral proteins and genetic material in cells, increasing the secretion of pro-inflammatory factors and causing cytokine storms, which are even worse for the already fragile neuronal cells.

## SARS-CoV-2 Virus Inhibits Mechanism of Autophagy



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Source: Developmental Cell

Autophagy dysregulation has many [harmful effects](#) on the body, especially on the nervous system. This is because neuronal cells are unlike our skin cells, which renew regularly and when damaged. Neuronal cells have a long life span, and cannot be renewed at any time when they are damaged, so they need to rely on the autophagy system to clean and repair themselves in response to external stressors.

So, neuronal cells are extremely sensitive to such disruptions. Without an effective rescue, one can imagine the impact of such cells being nearly corrupted and dying.

In addition, autophagic activity decreases with age. Therefore, autophagic dysfunction can exacerbate illness in the elderly.

A [study](#) published in the journal eClinicalMedicine found that COVID-19 patients had a cognitive loss equivalent to 20 years of aging, with a loss of 10 IQ points. We can understand this study data better now.

## **2 Simple Tips to Activate Autophagy**

Autophagy plays a very important role in human health. So how can we activate the inhibited autophagy process?

The body automatically activates autophagy when cells are invaded or damaged by pathogens. In addition, intermittent fasting can also activate the autophagy process, because fasting can cause cells to lack nutrients and enter a state of starvation, which will encourage cells to clean up and recycle waste materials. Therefore, fasting can improve many chronic diseases, including diabetes and rheumatism.

We would like to introduce two other novel ways to effectively activate autophagy.

### **1. Terpene Nutrients**

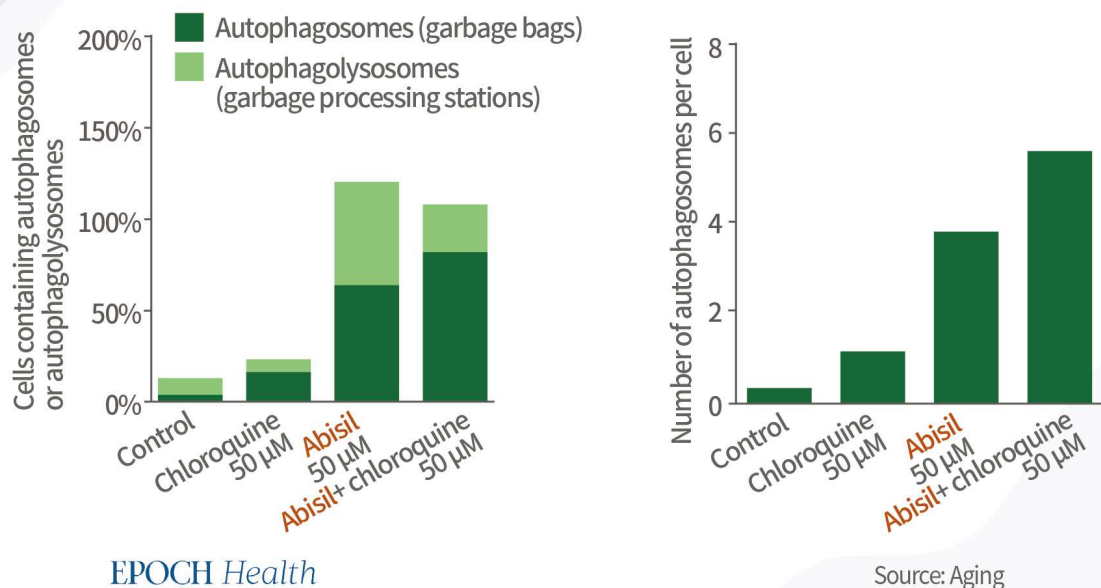
Plants provide us with many health-improving nutrients.

In an article published in the journal Aging in 2021, Russian scientists mentioned that terpenes extracted from Siberian fir trees could effectively activate autophagy.



After [treating cells with terpenes](#) for 24 hours, the percentage of cells containing autophagosomes (garbage bags) or autophagolysosomes (garbage processing stations) both increased significantly compared to the control group, and the number of autophagosomes contained in a single cell also increased.

## Terpene Treatment Activates Autophagy



[Terpenoids](#) are the main components of many plant essential oils. Essential oils are also widely used in aromatherapy. For instance, citrus peel and peppermint essential oil can help improve mood and spirit.

According to statistics, the total number of known terpenoids exceeds 22,000, and they are one of the most important sources for the development of new therapies.

## 2. Sitting in Meditation

Another therapy that can activate autophagy is sitting in meditation.

A [study](#) published in the journal Nature – Translational Psychiatry in 2016 observed 64 healthy women, half of whom were given a vacation while the other half meditated.

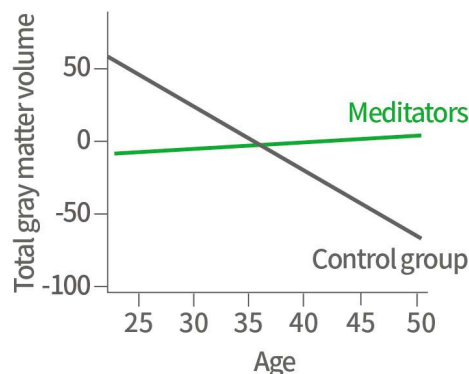
After one week, it was found that the meditators had significantly lower serum A $\beta$ 40, which implies increased autophagy in brain nerve cells and a reduced risk of dementia.

This finding echoes the findings of a study published in the journal *Neurobiology of Aging* in 2007.

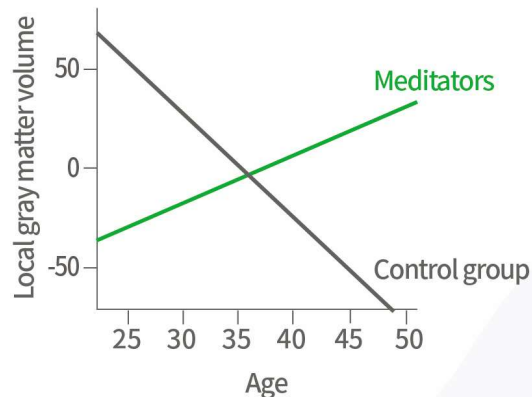
The [study](#) compared the gray matter volume in the brains of meditators and non-meditators. It was discovered that the gray matter volume of the meditators did not shrink with age, but even increased, suggesting that meditation reverses the aging of and damage to the brain.

Meditators also showed great improvement in the ability to concentrate and in their response times, which may help long COVID patients suffering from brain fog.

### Meditation Reverses Nerve Damages in the Brain



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Source: *Neurobiology of Aging*

This prolonged pandemic has affected the human body in many ways, including putting tremendous stress on our neurological and mental health. By taking a holistic approach and understanding the close connections between man and nature, the mind and body, we may have a better chance to lift our physical and mental health levels fundamentally.

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