

Long COVID Symptoms Linked to Effects on Vagus Nerve

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Several long COVID symptoms could be linked to the effects of the coronavirus on a vital central nerve, according to [new research](#) being released this spring.

The vagus nerve, which runs from the brain into the body, connects to the heart, lungs, intestines, and several muscles involved with swallowing. It plays a role in several body functions that control heart rate, speech, the gag reflex, sweating, and digestion.

Those with long COVID and vagus nerve problems could face long-term issues with their voice, a hard time swallowing, dizziness, a high heart rate, low blood pressure, and [diarrhea](#), the study authors found. Their findings will be presented at the 2022 European Congress of Clinical Microbiology and Infectious Diseases in late April.

"Most long COVID subjects with vagus nerve dysfunction symptoms had a range of significant, clinically-relevant, structural and/or functional alterations in their vagus nerve, including nerve thickening, trouble swallowing, and symptoms of impaired breathing," the study authors wrote. "Our findings so far thus point at vagus nerve dysfunction as a central pathophysiological feature of long COVID." Researchers from the University Hospital Germans Trias i Pujol in Spain performed a study to look at vagus nerve functioning in long

COVID patients. Among 348 patients, about 66% had at least one symptom that suggested vagus nerve dysfunction. The researchers did a broad evaluation with imaging and functional tests for 22 patients in the university's Long COVID Clinic from March to June 2021.

Of the 22 patients, 20 were women, and the median age was 44. The most frequent symptoms related to vagus nerve dysfunction were diarrhea (73%), high heart rates (59%), dizziness (45%), swallowing problems (45%), voice problems (45%), and low blood pressure (14%).

Almost all (19 of 22 patients) had three or more symptoms related to vagus nerve dysfunction. The average length of symptoms was 14 months.

Six of 22 patients had a change in the vagus nerve in the neck, which the researchers observed by ultrasound. They had a thickening of the vagus nerve and increased "echogenicity," which suggests inflammation.

What's more, 10 of 22 patients had flattened "diaphragmatic curves" during a thoracic ultrasound, which means the diaphragm doesn't move as well as it should during breathing, and abnormal breathing. In another assessment, 10 of 16 patients had lower maximum inspiration pressures, suggesting a weakness in breathing muscles.

Eating and digestion were also impaired in some patients, with 13 reporting trouble with swallowing. During a gastric and bowel function assessment, eight patients couldn't move food from the esophagus to the stomach as well as they should, while nine patients had acid reflux. Three patients had a [hiatal hernia](#), which happens when the upper part of the stomach bulges through the diaphragm into the chest cavity.

The voices of some patients changed as well. Eight patients had an abnormal voice handicap index 30 test, which is a standard way to

measure voice function. Among those, seven patients had dysphonia, or persistent voice problems.

The study is ongoing, and the research team is continuing to recruit patients to study the links between long COVID and the vagus nerve. The full paper isn't yet available, and the research hasn't yet been peer-reviewed.

"The study appears to add to a growing collection of data suggesting at least some of the symptoms of long COVID is mediated through a direct impact on the nervous system," David Strain, MD, a clinical senior lecturer at the University of Exeter Medical School, [told the Science Media Centre](#).

"Establishing vagal nerve damage is useful information, as there are recognized, albeit not perfect, treatments for other causes of vagal nerve dysfunction that may be extrapolated to be beneficial for people with this type of long COVID," he said.

Sources:

EurekAlert!: "Pilot study suggests long COVID could be linked to the effects of SARS-CoV-2 on the vagus nerve."

Science Media Centre: "Expert reaction to conference abstract looking at long COVID and the vagus nerve."

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