

Research finds blood-clotting imbalance persists in long COVID

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New research from RCSI University of Medicine and Health Sciences has provided greater insight into the causes of long COVID syndrome. The findings, which further investigate the link between long COVID

and blood clotting, have been published in the *Journal of Thrombosis and Haemostasis*.

Long COVID syndrome is a broad collection of symptoms including shortness of breath, fatigue and reduced [physical fitness](#) that can continue for many months after initial infection with COVID-19. Understanding is limited about why these symptoms persist in some patients but not others, and the novel syndrome remains a considerable clinical challenge for both doctors and patients alike.

To gain a new understanding of what causes long COVID, researchers at RCSI studied patients in Ireland with symptoms of long COVID, and saw that the body's blood-clotting and immune systems can remain tipped out of balance long after the initial infection.

The team of researchers, led by Professor James O'Donnell at the RCSI School of Pharmacy and Biomolecular Sciences with Dr. Helen Fogarty as Clinical Fellow, analyzed blood from 50 patients with long COVID syndrome up to 12 weeks post infection with the COVID-19 virus. They compared the samples to "controls," blood from healthy people who did not have long COVID syndrome.

The study found that the blood of patients with long COVID syndrome had higher levels of a [blood](#)-clotting booster called von Willebrand Factor (VWF), and lower levels of a protein that normally breaks down VWF, called ADAMTS13. Their analysis also suggests that [blood vessels](#) were still being damaged long after the [initial infection](#), and that specific cells of the immune system were at abnormal levels in patients with long COVID.

"In this study, we examined 50 patients with symptoms of long COVID syndrome. We saw that, in patients with long COVID, the normally finely tuned balance of pro- and anti-clotting mechanisms were tipped in

favor of [blood clotting](#)," said Dr. Helen Fogarty, Health Research Board Irish Clinical Academic Training (ICAT) Program Fellow and lead author on the paper. "Our analysis also suggests that abnormal clotting and disturbed immunity go hand in hand in long COVID. Together, these findings may help explain some of the symptoms of long COVID syndrome."

Commenting on the study, Professor James O'Donnell says that "extensive research has been carried on the dangerous clotting observed in patients with acute severe COVID-19 infection, and we now understand a lot more about how and why these deadly clots occur. In this study, we put the focus on long COVID syndrome, as so much less is known about this persistent illness which is affecting millions of people worldwide."

More information: Helen Fogarty et al, Sustained VWF-ADAMTS-13 axis imbalance and endotheliopathy in long COVID syndrome is related to immune dysfunction, *Journal of Thrombosis and Haemostasis* (2022). [DOI: 10.1111/jth.15830](https://doi.org/10.1111/jth.15830)

Provided by RCSI

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