

New research provides insight into Long COVID and ME

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Researchers have uncovered how post-viral fatigue syndromes, including Long COVID, become life-changing diseases and why patients suffer frequent relapses.

Arising commonly from a viral infection, Myalgic Encephalomyelitis/Chronic Fatigue Syndrome (ME/CFS), is known to cause brain-centered symptoms of neuroinflammation, loss of homeostasis, brain fog, lack of refreshing sleep, and poor response to even small stresses.

Long-COVID has similar effects on people and is believed to also be caused by neuroinflammation.

Lead author Emeritus Professor Warren Tate, of the University of Otago's Department of Biochemistry, says how these debilitating brain effects develop is poorly understood.

In a study published in *Frontiers in Neurology*, he and colleagues from Otago, Victoria University of Wellington and University of Technology Sydney, developed a unifying model to explain how the brain-centered symptoms of these diseases are sustained through a brain-body connection.

They propose that, following an initial viral infection or stressor event, the subsequent systemic pathology moves to the brain via neurovascular pathways or through a dysfunctional blood-brain barrier. This results in chronic neuroinflammation, leading to a sustained illness with chronic relapse recovery cycles.

The model proposes healing does not occur because a signal continuously cycles from the brain to the body, causing the patient to relapse.

The creation of this model is not only important for the "huge research effort ahead", but also to provide recognition for ME/CFS and Long COVID sufferers.

"These diseases are very closely related, and it is clear the biological basis of Long COVID is unequivocally connected to the original COVID infection—so there should no longer be any debate and doubt about the fact that post viral fatigue syndromes like ME/CFS are biologically based and involve much disturbed physiology," Emeritus Professor Tate says.

This work will enable best evidence-based knowledge of these illnesses, and best management practices, to be developed for [medical professionals](#).

"Patients need appropriate affirmation of their biological-based illness and help to mitigate the distressing symptoms of these very difficult life-changing syndromes which are difficult for the patients to manage by themselves.

"This work highlighted that there is a susceptible subset of people who develop such syndromes when exposed to a severe stress, like infection with COVID-19, or the glandular fever virus Epstein Barr, or in some people with vaccination that is interpreted as a severe stress.

"What should be a transient inflammatory/[immune response](#) in the body to clear the [infection](#), develop immunity and manage the physiological stress, becomes chronic, and so the disease persists."

More information: Warren Tate et al, Molecular Mechanisms of Neuroinflammation in ME/CFS and Long COVID to Sustain Disease and Promote Relapses, *Frontiers in Neurology* (2022). [DOI: 10.3389/fneur.2022.877772](https://doi.org/10.3389/fneur.2022.877772)

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