

Chronic fatigue offers clues to long COVID

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New research by La Trobe University has uncovered the intricate relationship between two debilitating conditions, myalgic encephalomyelitis/chronic fatigue syndrome (ME/CFS) and long COVID; offering insights into disease pathologies and potential treatment avenues.

The review article, "Unravelling shared mechanisms: insights from recent ME/CFS research to illuminate long COVID pathologies," [published](#) in *Trends in Molecular Medicine*, studied both diseases in tandem to unlock a deeper understanding of their shared characteristics and unique molecular abnormalities.

Lead author Dr. Sarah Annesley, Head of La Trobe's Molecular Cell Biology Laboratory, investigated the disease pathologies which highlighted the significant overlap between the two conditions, with approximately half of long COVID patients meeting the diagnostic criteria for ME/CFS.

"Research into both disorders is mutually beneficial as long COVID can provide a unique opportunity to study early disease changes and map these changes over the duration of the disease," Dr. Annesley said.

"Conversely the ME/CFS research, which typically involves patients with a longer disease duration, may provide clues as to the future disease pathology of long COVID."

While the two conditions share clinical similarities and proposed disease pathologies, it remains unclear if they also share common molecular abnormalities.

"Most consistently altered pathologies in ME/CFS and long COVID include an increased reliance on alternatives to carbohydrates as substrates for [energy production](#) and altered [gut microbiota](#), with a reduction in butyrate-synthesizing bacteria," Dr. Annesley said.

The review highlighted promising early results in therapeutic interventions targeting autoimmune responses in ME/CFS and long COVID, which will require further [clinical trials](#).

The research identified potential signs in the body, known as biomarkers, which could help doctors diagnose and track these conditions better. It was found measuring certain types of RNA could be the most accurate and clinically practicable clues for ME/CFS. However, their accuracy and clinical use require replication and validation in larger samples.

"Leveraging insights into both disorders may accelerate progress towards improving the lives of people affected by these debilitating conditions," Dr. Annesley said.

Dr. Annesley's paper coincides with the announcement of two La Trobe ME projects which have been awarded grants to conduct further studies into the condition, including one with Dr. Annesley as an investigator. This project will examine how the different pathologies of ME/CFS and long COVID interact, such as alterations in the gut, microbiota, the immune system and metabolism.

More information: Sarah J. Annesley et al, Unravelling shared mechanisms: insights from recent ME/CFS research to illuminate long COVID pathologies, *Trends in Molecular Medicine* (2024). [DOI: 10.1016/j.molmed.2024.02.003](https://doi.org/10.1016/j.molmed.2024.02.003)

Provided by La Trobe University

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