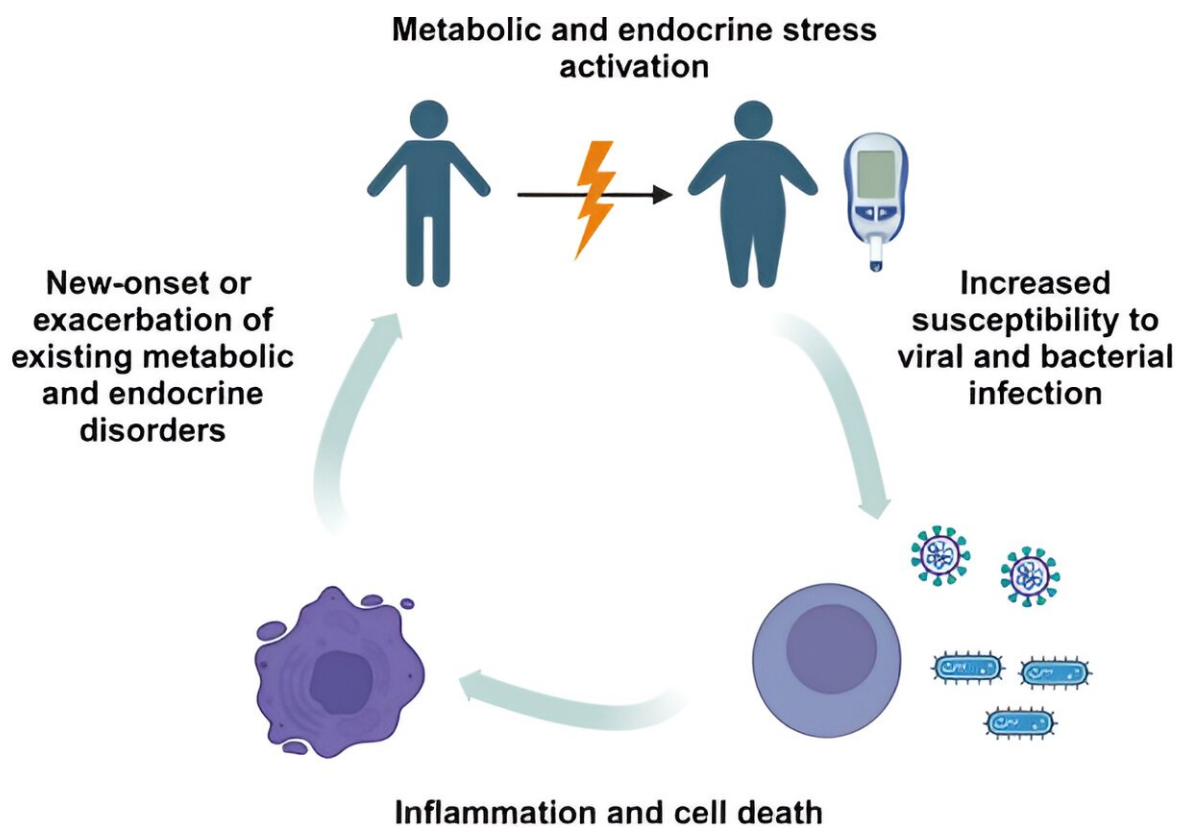


Researchers propose multimodal approach to tackle post-acute infectious syndromes, including long COVID

September 3 2024



Metabolic and endocrine stress activation. The endocrine stress axis, which can be triggered by various factors such as psychological stress, physical exhaustion, or metabolic diseases, plays a pivotal role in the body's response mechanisms. When the endocrine stress axis is persistently activated, the body's immune system can become compromised, leading to heightened susceptibility to infections. Chronic or excessive inflammation can lead to tissue damage and cell death, which might aggravate or initiate metabolic and endocrine disorders, thus

perpetuating a vicious cycle. Created with BioRender.com. Credit: *Brain Medicine* (2024). DOI: 10.61373/bm024p.0064

In a world still grappling with the aftermath of the COVID-19 pandemic, a team of international researchers has proposed a novel approach to treating the persistent symptoms that plague many survivors of viral infections. The study, [published](#) in *Brain Medicine*, outlines a multimodal treatment strategy that could offer hope to millions suffering from post-acute infectious syndromes (PAIS), including the condition commonly known as long COVID.

Dr. Charlotte Steenblock, lead author of the study from the University Hospital Carl Gustav Carus in Dresden, Germany, explains, "We've learned that post-viral syndromes are incredibly complex, with no single cause or cure. Our research suggests that by combining different treatment modalities, we might be able to reset the body's systems and provide relief to those suffering from these debilitating conditions."

The proposed treatment regimen includes a mix of pharmacological interventions and physical therapies. On the medication front, the researchers highlight the potential of metformin, a common diabetes drug, and low-dose naltrexone, traditionally used to treat addiction. Both have shown promise in reducing inflammation and modulating the immune system.

Complementing these medications, the study advocates for physical treatments like extracorporeal apheresis—a blood filtering technique—and transcutaneous neurotherapy, which stimulates the vagus nerve. These approaches aim to reduce inflammation, improve blood flow, and potentially alleviate cognitive symptoms.

"What's particularly exciting about this approach is its potential to address the wide range of symptoms seen in PAIS," says co-author Dr. Milo A. Puhan from the University of Zurich. "From fatigue and brain fog to cardiovascular issues, we're looking at a [treatment](#) strategy that could tackle multiple aspects of these conditions simultaneously."

The researchers emphasize that their proposed strategy is based on a comprehensive review of current evidence and hypotheses about the underlying mechanisms of post-viral syndromes. They call for large-scale [clinical trials](#) to validate the effectiveness of this multimodal approach.

Dr. Stefan R. Bornstein, senior author of the study, adds, "We're at a critical juncture in our understanding of post-infectious syndromes. This perspective piece aims to stimulate further research, and hopefully, lead to more effective treatments for those suffering from these long-term effects of viral infections. Patients with post-infectious syndromes are completely desperate to find treatments that provide some form of relief.

"Randomized controlled trials are not available, and if performed, they will be difficult to interpret due to the heterogeneity of patient groups. Therefore, we propose a more individualized approach based on the currently available biomarkers, using a multimodal strategy that has proven to provide improvement for patients in several cohort studies. Even in the absence of high-level evidence, such a practice-oriented management may offer some guidance for physicians, and most importantly, temporary or long-term relief for our patients."

As the world continues to navigate the long-term impacts of the COVID-19 pandemic and prepares for future health challenges, this innovative approach could represent a significant step forward in treating post-viral syndromes. The researchers hope their work will inspire

further studies and ultimately lead to improved quality of life for millions affected by these persistent conditions.

More information: Charlotte Steenblock et al, A multimodal approach for treating post-acute infectious syndrome, *Brain Medicine* (2024). [DOI: 10.61373/bm024p.0064](https://doi.org/10.61373/bm024p.0064). [bm.genomicpress.com/wp-content...-Steenblock-2024.pdf](https://bm.genomicpress.com/wp-content/uploads/2024/09/10.61373-bm024p.0064-Steenblock-2024.pdf)

Provided by Genomic Press

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