

# Success in treating persistent pain now offers hope for those with long COVID

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Credit: Andrea Piacquadio from Pexels

The emergence of long COVID as a mysterious new illness has refocused attention on the incapacitating nature of persistent fatigue.

Around the world, this unexpected outcome of the pandemic is now a significant health issue causing considerable personal suffering, absences from work and high projected societal costs.

An added burden for long COVID patients arises from medical skepticism and [social stigma](#), which leads to self-doubt and shame.

So far, the focus has been on the lack of available treatments, implying there is no cure. But [persistent fatigue](#) also often [accompanies chronic pain](#). Emerging understandings of the neurophysiology of pain and sensation now provide more optimism for people with long COVID.

## Similarities between long COVID and chronic fatigue

The virus that causes COVID has infected 750 million people, many of whom died prior to mass vaccination. Most people fully recover from mild infections, but about 10% develop [persistent and exhausting fatigue](#), including brain fog, as well as anxiety or breathlessness and a cluster of other symptoms.

Long COVID's [wide range of symptoms is similar](#) to those in [chronic fatigue syndrome](#), or myalgic encephalitis. Known as CFS/ME, this illness gained prominence in the 1970s as a relapsing condition after glandular fever, though we now know it can [be triggered by other infections](#).

Recent insights from the burgeoning field of neuroscience now [guide clinical management of chronic pain](#) and may offer hope for people living with persistent fatigue.

## The neuroscience of pain and sensation

Neuroscience is the study of the central and [peripheral nervous system](#), a complex whole-body network that monitors and regulates all our internal functions, well [below our conscious thought and control](#).

The fight-flight response in stressful situations is a useful example. Our attention becomes more focused, our heart beats faster and blood pressure increases to pump more blood to our muscles. We don't need to think; it just happens.

The sensation of pain is now understood as a warning signal created by the nervous system in response to an actual or potential threat to our safety. The intensity of the pain signal depends not only on the physical injury but on our previous experiences and expectations.

Persistent pain often arises from a hyper-vigilant nervous system which perpetuates the warning signal. The underlying neurophysiology in persistent pain is known as "[central sensitization](#)." This term describes an overly sensitive warning system causing exaggerated pain signals even after damaged tissue has healed.

Central sensitization depends on the phenomenon of neuroplasticity. Neurological pathways we use frequently [become more established, efficient and dominant](#). In persisting pain and fatigue, the associated neural pathways become highly developed, even if this is counterproductive to normal functioning.

While neuroplasticity contributes to the development of unhelpful neurological pathways, the converse applies, too. [Unhelpful pathways can be down regulated](#), improving symptoms.

## **Applying neuroscience to CFS/ME and long COVID**

These insights underpin the concept of pain neuroscience education.

Pain clinics worldwide use it to teach patients about the nature of pain and its contributing factors, many of which are [not under conscious control](#).

These explanations provide an essential framework for understanding how specific activities—including group education, physical retraining and identifying hidden beliefs—can [facilitate recovery](#).

[Research](#) has shown how appropriately trained general practitioners can provide explanations that aid recovery for a wide variety of persistent symptoms, including fatigue and pain.

At normal levels, pain and fatigue are best viewed as [adaptive responses](#). Just like pain, fatigue is a warning signal, implying the body needs to rest. The degree of fatigue is influenced by many factors, also at a subconscious level.

As in persistent pain, inflammation and dysfunction of the nervous system underpin the cluster of [widespread problems in CFS/ME](#) and in [long COVID](#). It follows that current approaches to [chronic pain might also be applied to persistent fatigue syndromes](#).

## Encouraging early results

Research shows promising early results. One study addressed [subconsciously held beliefs about the nature of the illness](#), which reduced the fatigue of long COVID, with sustained effects at six months.

A [Scandinavian research group](#) has also questioned current narratives describing persistent fatigue syndrome as an "incomprehensible and incurable disease without any available treatment." Instead, they called for a more constructive narrative based on [emerging insights about the nervous system](#) and its role in creating, and at times inadvertently

perpetuating, the debilitating sensation of fatigue.

These insights may allay current fears about long COVID as a mysterious illness. While there is no magic bullet, supportive care supplemented with "fatigue neuroscience education" may provide patients with a better understanding of the mechanisms behind their symptoms and useful advice for recovery.

These concepts have [yet to be integrated](#) into medical training and clinical care for persisting fatigue syndromes. But ongoing neuroscience research and reports of encouraging clinical results now create some optimism for understanding and treating long COVID.

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