“Long COVID,” also known as Long Hauler or ‘post-acute sequelae of COVID-19’, is a Post Viral Syndrome similar to CFS/ME (chronic fatigue syndrome/Myalgic Encephalomyelitis) condition means that people continue to suffer from extreme Fatigue, Brain Fog, High EBV (Epstein Barr Virus) and host of other symptoms for longer than usual after initially contracting the SARS-CoV-2 virus. Komaroff A.L., Harvard Medical School and Lipkin, W.I. compares the symptoms of chronic fatigue syndrome/Myalgic Encephalomyelitis and Long COVID as depicted in the table below. Estimated numbers vary but the assumption is that, of all those who had COVID-19 globally, at least 10% have long COVID. Infection with SARS-CoV-2 can produce microvascular damage and neuroinflammation. Even people with mild acute COVID-19 also experience some loss of cognitive capacity and of gray matter compared with those who did not have COVID-19.

The Centers for Disease Control and Prevention states that in the “post-COVID condition” or “Long COVID”, symptoms can be present four or more weeks after infection with SARS-CoV-2. The World Health Organization defines the condition as the continuation or development of new symptoms 3 months after the initial SARS-CoV-2 infection and lasting for at least 2 months with no other explanation.

Long COVID is a multisystemic condition comprising often severe symptoms that follow a severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection. There are more than 200 reported symptoms associated with long COVID, affecting virtually every organ system. Core symptoms include breathing difficulties, muscle pain, anosmia, tingling extremities, and general tiredness. Many of these symptoms are non-specific, but are seen at higher rates in people with long COVID than would be expected in the general population.

These symptoms might persist from their initial illness or develop after their recovery. They can come and go or relapse over time.

People with long COVID may have difficulty functioning in their day-to-day life. Their condition may affect their ability to perform daily work or household chores.

The symptoms differ between people, as well as between adults and children. According to Dr. Komaroff, Harvard Medical School, Infection with SARS-CoV-2 can produce microvascular damage and neuroinflammation.

Overall, the most common symptoms of Long COVID condition include:

- fatigue
- brain fog, wherein they find it more challenging to think clearly and focus
- shortness of breath or difficulty breathing
- memory, concentration
- sleep problems
- persistent cough
- chest pain
- trouble speaking
- muscle aches
- loss of smell or taste
- depression or anxiety
- fever
- headaches
- heart palpitations, or a feeling of the heart pounding

The main disease hypotheses for the root causes of long COVID include viral persistence (infectious virus, viral RNA, or viral proteins), autoimmunity triggered by the infection, reactivation of latent viruses, and inflammation-triggered chronic changes leading to tissue dysfunction and damage.

Table 1

Symptom	ME/CFS	Long COVID	Symptom	ME/CFS	Long COVID
Fatigue	✓	✓	Poor appetite	✓	✓
Post-exertional malaise	✓	✓	Orthostatic intolerance	✓	✓
Headaches	✓	✓	Palpitations	✓	✓
Sleep disorder	✓	✓	Breathlessness	✓	✓
Impaired reasoning	✓	✓	Nausea and diarrhea	✓	✓
Impaired memory	✓	✓	Chills	✓	✓
Impaired attention	✓	✓	Cough	✓	✓
Secondary depression	✓	✓	Decreased smell and taste		✓
Secondary anxiety	✓	✓	Rash and hair loss		✓
Reduced activity	✓	✓	Painful lymph nodes	✓	
Myalgia/arthralgia	✓	✓	Chemical sensitivities	✓	
Muscle weakness	✓	✓	Tinnitus	✓	
Hot and cold spells	✓	✓			

The above table clearly depicts that ME/CFS (Myalgic Encephalomyelitis/chronic fatigue syndrome) has similar symptoms. Dr. Fauci, Director of National Institute of Allergy and Infectious Diseases in July 2020 stated that post-covid syndrome "is highly suggestive of" myalgic encephalomyelitis. It has been originally reported that Nexavir has proven to be effective in treating 270 CFS cases by Drs. Steinbach and Hermann in 1980 with 75% reporting recovery or near recovery.

References:

Altmann, D. M., Whettlock, E. M., Liu, S., Arachchillage, D. J., & Boyton, R. J. (2023). The immunology of long COVID. *Nature Reviews Immunology*, *23*(10), 618-634.

Davis, H. E., McCorkell, L., Vogel, J. M., & Topol, E. J. (2023). Long COVID: major findings, mechanisms and recommendations. *Nature Reviews Microbiology*, *21*(3), 133-146.

Iwasaki, A., & Putrino, D. (2023). Why we need a deeper understanding of the pathophysiology of long COVID. *The Lancet Infectious Diseases*, *23*(4), 393-395.

Saunders, C., Sperling, S., & Bendstrup, E. (2023). A new paradigm is needed to explain long COVID. *The Lancet Respiratory Medicine*, *11*(2), e12-e13.

Post COVID-19 condition (Long COVID), World Health Organisation dated 7 December 2022

Komaroff, A.L. reviewing Hampshire A et al. N Engl J Med 2024 Feb 29 Mild-to-Moderate Cognitive Deficits Persist After COVID-19

Komaroff, A. L., & Lipkin, W. I. (2023). ME/CFS and Long COVID share similar symptoms and biological abnormalities: road map to the literature. *Frontiers in Medicine*, *10*, 1187163.