



ABSTRACT

## Coenzyme Q-10: A potential role in alleviating long Covid-19 symptoms

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### Abstract : Nutrition Virtual Symposium 2021 - Speaker

Globally, as of mid August 2021 there have been more than 200 million confirmed cases of COVID-19 reported to WHO. About 80% of COVID-19 cases are asymptomatic and mild, and most of the cases resolved within 2-4 weeks. While severe pneumonia and critical multi-organ failure occurs in 15% and 5% respectively, and can last for 3-6 weeks. The post-COVID symptoms, initially referred to as ‘long COVID’ or ‘long-haul COVID’, are now collectively referred to as ‘post-acute sequelae of SARS-CoV-2 infection’ (PASC).

A systematic review found that persistent COVID-19 symptoms were common, with 72.5% of patients reporting at least 1 symptom at 60 days or more after diagnosis, symptom onset, or hospitalization or at 30 days or more after recovery from acute illness or hospital discharge. Reason for the persistence of symptoms can be the sequelae of organ damage, varying extent of injury (organ damage) and varying time required for the recovery of each organ system, persistence of chronic inflammation (convalescent phase) or immune response/auto antibody generation. Fatigue and shortness of breath were the most frequently reported persistent symptoms. Profound fatigue is a common problem and one study showed that at 10 weeks of follow up after SARS-CoV-2 infection; more than 50% of people were suffering from fatigue. Post viral fatigues are commonly reported in people with viral infections like EBV, Ebola, Influenza, SARS and MERS. If fatigue persists for 6 months or longer and without any other reason, it is called chronic fatigue syndrome. Myalgic encephalomyelitis / chronic fatigue syndrome (ME/CFS) is a disease of unknown pathophysiology but already known to be associated with other viral infections such as Epstein Barr or glandular fever.

It is characterized by exertional fatigue that is not relieved by rest, and as well as pain, severe cognitive dysfunction, insomnia and/or lack of restful sleep, and sensitivity to light and sound, lasts for longer than six months. There is concern that some people with post viral fatigue will develop into the condition that is symptomatically the same as ME/CFS. Mitochondrial dysfunction may possibly account for clinical symptoms in ME/CFS. Mitochondria are organelles that are present in every cell of the body and produce 90-95% of the body’s total energy. Mitochondrial respiration produces the energy-carrier adenosine triphosphate (ATP) which drives all the necessary chemical reactions in the b

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Coenzyme Q10 (CoQ10) is an important antioxidant in the mitochondria that is endogenously synthesized in humans. It is the key component of electron transport chain responsible for mitochondrial ATP production, which decreases free radical generation. People with ME/CFS reportedly have significantly decreased levels of plasma coenzyme Q10 whose levels correlate inversely with the degree of fatigue, impaired concentration and memory, and symptoms of autonomic dysfunction. Due to the potential role of mitochondria in ME/CFS, interventions targeting mitochondria have been used to assist in improving patient outcomes such as fatigue and their health-related quality of life, including CoQ10. A clinical trial results showed that the combination of CoQ10 plus NADH had a positive effect on the perception of fatigue, sleep quality, and health related quality of life in ME/CFS. Currently, a clinical trial investigating the effect of high dose CoQ10 treatment in subjects with persisting symptoms more than 12 weeks after SARS-CoV-2 infection is still on going and potentially be a promising approach to improve the quality of live in long-haul COVID.

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**Keywords:** long covid, fatigue, post-viral, CoQ10

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