

## Role of Nutrition Therapy During COVID 19

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### Abstract

*Nutrition is a vital element of health. More decisively, nutrition is part of the treatment routine for acute and chronic diseases and applies mainly to conditions for which an etiologic treatment has not yet been discovered. Ebola virus outbreak Western Africa in the 2014–2016 proved that immediate supportive care significantly reduces case mortality rates [1]. This may relate as well to the current COVID-19 pandemic that is disturbing the world. Emerging evidence shows that COVID-19 is associated with negative outcomes in older, comorbid, and hypoalbuminemia patients. These features are not specific to the Chinese residents because they have been testified also in North American patients with COVID-19. When measured together, the emerging literature on patients with COVID-19 indirectly highlights the applicability of nutrition in possibly determining their outcomes. Older age and the presence of comorbid conditions are almost consistently associated with impaired nutritional status and sarcopenia, independently of body mass index. Fascinatingly, a high body mass index score appears to be related to a poor prognosis in comorbid patients with COVID-19, which further points to a possible role of sarcopenic obesity in influencing the outcome [2].*

### Definition

Nutrition therapy or as one may say diet therapy is a very broad term if taken into perspective. Usually, nutrition therapy is taking a normal dietary pattern into account and modifying it to attain ultimate health. It also includes modification of one's lifestyle along with his/her diet pattern. However, in some cases, an alternative dietary/lifestyle plan can be made for the aim of adding or eliminating specific foods or nutrients to recuperate from an illness.

### Introduction

At the completion of 2019, a series of pneumonia cases of unknown cause arose in Wuhan, starting a pandemic that spread like wildfire through the whole globe. The reason for the cases then was known to be a novel virus, found in bats in Wuhan city that later on transmitted to humans. Coronaviruses are zoonotic and are spreading for the third time in the 21st century. There have been around 15,220,860 reported cases of coronavirus disease 2019 (COVID-2019) and 622,506 reported deaths to date (22/07/2020). This disease is mostly spread by contact or breathing of micro particles infected with the coronavirus. The usual symptoms include cough and

struggle in breathing but many are asymptomatic. Fortunately, so far, children are uncommonly affected with no deaths. But the longer-term course of this virus is unknown. This particular article gives an eye on the disease and how it is related to nutrition therapy [3].

### Epidemiology

Coronavirus disease 2019 (COVID 19) is the third type of coronavirus disease that has been on this planet for the past 20 years. Full investigations found that severe acute respiratory syndrome coronavirus (SARS-CoV) was conveyed from civet cats to humans and Middle East respiratory syndrome coronavirus (MERS-CoV) from dromedary camels to humans, making coronaviruses a zoonotic. COVID 19 is known to spread faster than its previous two types but is lower in a loss. COVID 19 is highly transmissible within humans and is known to spread through droplets of coughing and sneezing and showing mild symptoms in some and none in others. Hence it is remarkably advised to keep a barrier between and across humans and other animals to avoid these kinds of the pandemic. The number of long-established cases is consistently increasing worldwide and after Asian and European regions, a step increase in cases is

currently (22 July 2020) being observed in low-income and developing countries [3,4].

## Etiology

Coronaviruses are enveloped single-stranded RNA viruses that are zoonotic in nature and cause symptoms that are similar to the common cold or more severe respiratory, enteric, hepatic, and neurological symptoms. Other than SARS-CoV-2, there are six known coronaviruses in humans: HCoV-229E, HCoV-OC43, SARS-CoV, HCoV-NL63, HCoVHKU1, and MERS-CoV. Coronavirus has caused two large-scale pandemics in the last 20 years: SARS and MERS. It was found out that COVID 19 (previously known as SARS-CoV 2) originated from Wuhan, China. Laboratory tests also identified an immense similarity between SARS-CoV 2 and coronaviruses found in bats [4].

## Pathophysiology

To notice the infection source of COVID-19, China CDC researchers collected environmental samples from the Seafood Market in Wuhan, China. They noticed some samples containing SARS-CoV-2 and indicated that it originated from wild animals sold in the market. Then, researchers used samples of patients to conduct laboratory tests. These laboratory tests found that the virus-specific nucleic acid sequences in the sample are different from those of known human coronavirus species. Laboratory results also indicated that SARS-CoV-2 is alike to some of the beta ( $\beta$ ) coronaviruses genera identified in bats, which is sited in a group of SARS/SARS-like CoV [5].

## Treatment

Hydroxychloroquine has been found to be efficacious on SARS-CoV-2 and reported to be efficacious in Chinese COV-19 patients. But, given the risk of dysrhythmias, the Food and Drug Administration (FDA) cautions against the use of chloroquine or hydroxychloroquine for the treatment of COVID-19 outside of a hospital or clinical trial. Compared to the lopinavir/ritonavir-treated patients, the chloroquine-treated patients had a shorter duration from symptom onset to initiation of treatment. Both chloroquine and lopinavir/ritonavir were generally well-tolerated [5].

## Nutrition Therapy

Based on available clinical observations, it is obvious that despite people of all ages who can become infected, malnourished elderly people, with low immunity and patients with chronic diseases have an eviler prognosis and have a higher mortality rate. When considered together, the emerging literature on patients with COVID-19 indirectly highlights the relevance of nutrition in possibly decisive their outcomes. Nutritional status appears as a relevant factor influencing the outcome of patients with COVID-19. However, the timing of nutritional intervention appears to be critical because

most patients rapidly progress from cough to dyspnea, and then to respiratory failure.

As a nutrition therapy, the unaffected were advised to use immunity-boosting nutrients, including Vitamin C, Vitamin D, Zinc, Selenium, Iron, and protein, in their regular diet almost every day. These immunity-boosting nutrients are identified as critical for the growth and proper functioning of our immunity cells. [6] It was also instructed to the affected and unaffected to use more fluids in their diets, let it be water or other fruits and vegetable juices. Increasing water intake can make your body process more efficient, which is important for the immune system.

At last, for critically ill patients with COVID 19 in ICU, early EN must be started within 48 hours, if no contraindications are present. PN must be started within 3 to 7 days and must be considered when all strategies for EN have failed to avoid severe malnutrition. Based on available clinical observations, it is evident that despite people of all ages who can become infected, malnourished elderly people, with low immunity and patients with chronic diseases have a worse prognosis and have a higher mortality rate. When considered together, the emerging literature on patients with COVID-19 indirectly highlights the relevance of nutrition in possibly determining their outcomes. Nutritional status appears as a relevant factor influencing the outcome of patients with COVID-19. However, the timing of nutritional intervention appears to be critical because most patients rapidly progress from cough to dyspnea, and then to respiratory failure [6].

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## Requirements for affected people with COVID 19

**Calories:** COVID-19 needs more energy than normal. The most correct estimate of caloric needs is functional to avoid overfeeding or underfeeding. It is recommended to supply 84-126 kJ/kg/day

**Protein:** To reduce catabolism due to the inflammatory mediators, it is indicated to increase protein supply as a top priority. It is recommended 1.3 g/kg/day.

**Carbohydrate:** carbohydrate administration should be limited in the critically COVID-19 patient with respiratory failure. The carbohydrate requirement is 2 g/kg/day and must not exceed 150 g per day.

**Fat:** the lipid requirement of the critically ill patient is 1.5 g/kg/day [6].

### Conclusion

Proper nutrition and hydration are dynamic. People who eat a well-balanced diet incline to be healthier with stronger immune systems and lower risk of chronic illnesses and infectious diseases. So one should eat a variety of fresh fruits, vegetables and unprocessed foods every day to get the vitamins, minerals, dietary fiber, protein and antioxidants your body needs. Drink enough water. Avoid sugar, fat and salt to significantly lower your risk of overweight, obesity, heart disease, stroke, diabetes and certain types of cancer.

Along with this counselling and psychosocial support is important as proper nutrition and hydration improve health and immunity, they are not magic bullets. People living with chronic illnesses who have suspected or confirmed COVID-19 may need support with their mental health and diet to ensure they keep in good health. Seek counselling and psychosocial support from appropriately trained health care professionals and also community-based lay and peer counsellors.

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