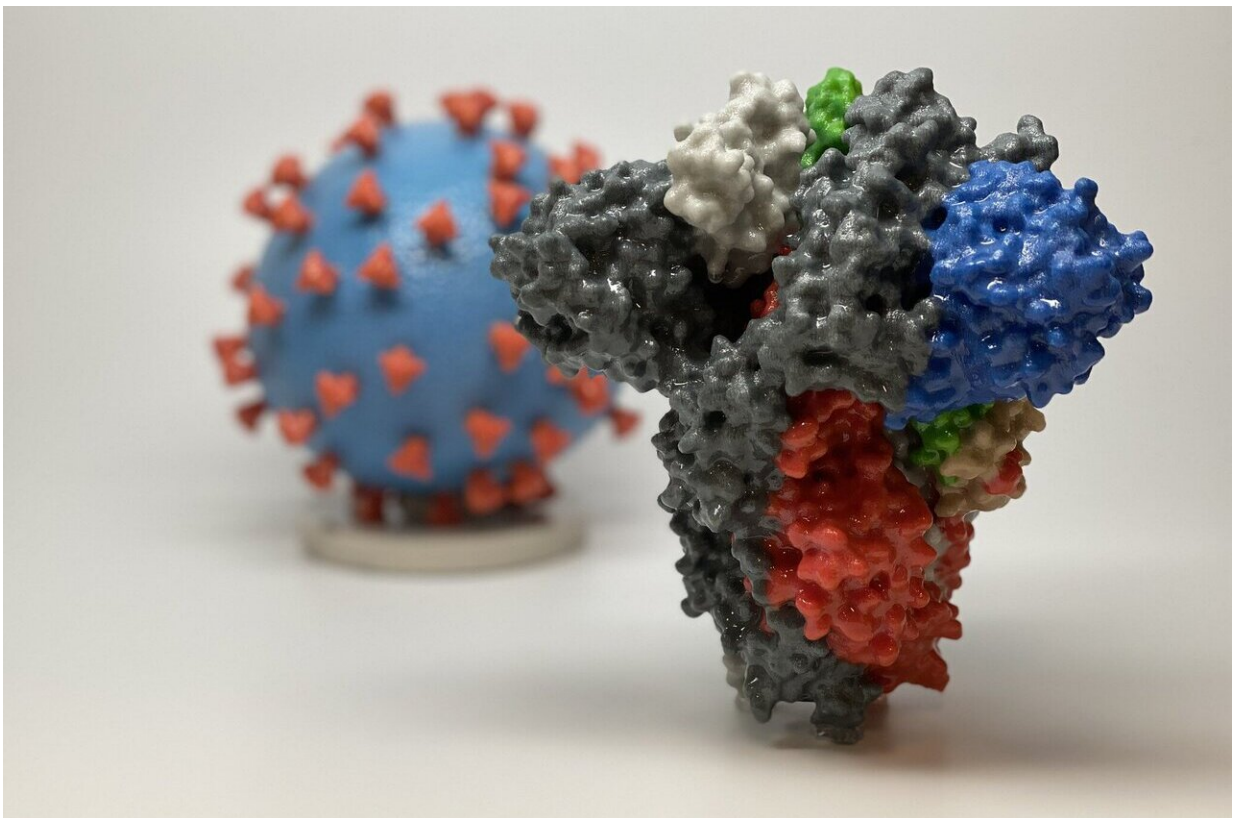# Adequate levels of vitamin D reduces complications, death among COVID-19 patients

September 25 2020



3D print of a spike protein of SARS-CoV-2, the virus that causes COVID-19—in front of a 3D print of a SARS-CoV-2 virus particle. The spike protein (foreground) enables the virus to enter and infect human cells. On the virus model, the virus surface (blue) is covered with spike proteins (red) that enable the virus to enter and infect human cells. Credit: NIH

Hospitalized COVID-19 patients who were vitamin D sufficient, with a blood level of 25-hydroxyvitamin D of at least 30 ng/mL (a measure of vitamin D status), had a significant decreased risk for adverse clinical outcomes including becoming unconscious, hypoxia (body starved for oxygen) and death. In addition, they had lower blood levels of an inflammatory marker (C-reactive protein) and higher blood levels of lymphocytes (a type of immune cell to help fight infection).

"This study provides direct evidence that vitamin D sufficiency can reduce the complications, including the cytokine storm (release of too many proteins into the blood too quickly) and ultimately death from COVID-19," explained corresponding author Michael F. Holick, Ph.D., MD, professor of medicine, physiology and biophysics and molecular medicine at Boston University School of Medicine.

A blood sample to measure vitamin D status (measured serum level of 25-hydroxyvitamin D) was taken from 235 patients were admitted to the hospital with COVID-19. These patients were followed for clinical outcomes including clinical severity of the infection, becoming unconscious, having difficulty in breathing resulting in hypoxia and death. The blood was also analyze for an inflammatory marker (C-reactive protein) and for numbers of lymphocytes. The researchers then compared all of these parameters in patients who were vitamin D deficient to those who were vitamin D sufficient.

In patients older than 40 years they observed that those patients who were vitamin D sufficient were 51.5 percent less likely to die from the infection compared to patients who were vitamin D deficient or insufficient with a blood level of 25-hydroxyvitamin D less than 30 ng/mL.

Holick, who most recently published a study which found that a sufficient amount of vitamin D can reduce the risk of catching

coronavirus by 54 percent, believes that being vitamin D sufficient helps to fight consequences from being infected not only with the corona virus but also other viruses causing upper respiratory tract illnesses including influenza. "There is great concern that the combination of an influenza infection and a coronal viral infection could substantially increase hospitalizations and death due to complications from these viral infections."

According to Holick this study provides a simple and cost-effective strategy to improve one's ability to fight the corona virus and reduce COVID-19's adverse clinical outcomes, including requiring ventilator support, overactive immune response leading to cytokine storm and death. "Because vitamin D deficiency and insufficiency is so widespread in children and adults in the United States and worldwide, especially in the winter months, it is prudent for everyone to take a vitamin D supplement to reduce risk of being infected and having complications from COVID-19."

These findings appear online in the journal *PLOS ONE*.

 **More information:** *PLOS ONE* (2020). DOI: 10.1371/journal.pone.0239799

Provided by Boston University School of Medicine

Citation: Adequate levels of vitamin D reduces complications, death among COVID-19 patients (2020, September 25) retrieved 20 March 2024 from https://medicalxpress.com/news/2020-09-adequate-vitamin-d-complications-death.html