

Pre-infection vitamin D deficiency associated with increased severity and mortality among COVID-19 patients

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Vitamin D is most often recognized for its role in bone health, but low levels of the supplement have been associated with a range of autoimmune, cardiovascular, and infectious diseases. Early on in the

pandemic health officials began to encourage people to take vitamin D, as it plays a role in promoting immune response and could protect against COVID-19.

In a study published today in the journal *PLOS ONE* researchers from the Azrieli Faculty of Medicine of Bar-Ilan University in Safed, Israel and the Galilee Medical Center in Nahariya, Israel show a correlation between [vitamin](#) D deficiency and COVID-19 severity and mortality.

The study is among the first to analyze vitamin D levels prior to infection, which facilitates a more accurate assessment than during hospitalization, when levels may be lower secondary to the viral illness.

The records of 1,176 patients admitted between April 2020 and February 2021 to the Galilee Medical Center (GMC) with positive PCR tests were searched for vitamin D levels measured two weeks to two years prior to infection.

Patients with vitamin D deficiency (less than 20 ng/mL) were 14 times more likely to have severe or critical case of COVID than those with more than 40 ng/mL.

Strikingly, mortality among patients with sufficient vitamin D levels was 2.3%, in contrast to 25.6% in the vitamin D deficient group.

The study adjusted for age, gender, season (summer/winter), [chronic diseases](#), and found similar results across the board highlighting that low vitamin D level contributes significantly to disease severity and mortality.

"Our results suggest that it is advisable to maintain normal levels of vitamin D. This will be beneficial to those who contract the virus," says Dr. Amiel Dror, of the Galilee Medical Center and Azrieli Faculty of

Medicine of Bar-Ilan University, who led the study. "There is a clear consensus for vitamin D supplementation on a regular basis as advised by local health authorities as well as global health organizations."

Dr. Amir Bashkin, an Endocrinologist who participated in the current study, adds that "This is especially true for the COVID-19 pandemic when adequate vitamin D has an added benefit for the proper immune response to respiratory illness."

"This study contributes to a continually evolving body of evidence suggesting that a patient's history of vitamin D deficiency is a predictive risk factor associated with poorer COVID-19 clinical disease course and mortality," said study co-author Prof. Michael Edelstein, of the Azrieli Faculty of Medicine of Bar-Ilan University. "It is still unclear why certain individuals suffer severe consequences of COVID-19 infection while others don't. Our finding adds a new dimension to solving this puzzle."

More information: Amiel A. Dror et al, Pre-infection 25-hydroxyvitamin D3 levels and association with severity of COVID-19 illness, *PLOS ONE* (2022). [DOI: 10.1371/journal.pone.0263069](https://doi.org/10.1371/journal.pone.0263069)

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