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# Low Levels of 25-Hydroxyvitamin D Linked to COVID-19 Risk

What makes a person more likely to contract COVID-19? A lack of Vitamin D that was determined by the measurement of 25-hydroxyvitamin D in the blood, according to a new study of more than 190,000 people led by Michael F. Holick, PhD, MD, professor of Medicine, Physiology and Biophysics and Molecular Medicine at Boston University Medical Campus

Vitamin D is known to affect both the innate and adaptive immune systems and may have a role in protecting against respiratory infections. Previous small studies have suggested a relationship between vitamin D deficiency and risk of infections and mortality from COVID-19, but the studies were mostly based on geographic trends in vitamin D status and COVID-19 infection rates rather than individual patients.

This new retrospective study, which was published in [PLOS ONE](#), showed a strong correlation between higher 25-hydroxyvitamin D blood levels and lower SARS-CoV-2 positivity rates especially in patients who lived in predominantly African-Americans and Hispanic zip codes.

“We evaluated more than 190,000 blood samples from patients of all ethnicities and ages infected with COVID in all 50 states. We observed that the higher that the patient’s blood level of 25-hydroxyvitamin D was, up to 55 ng/mL lower was their risk of being infected with the coronavirus. People of color have been particularly affected by COVID 19,” said Dr. Holick.

“We found that patients living in predominantly African-American and Hispanic zip codes were more likely to be vitamin D deficient and have a higher risk of acquiring the infection. We found those patients who were vitamin D deficient (blood level 25-

hydroxyvitamin D less than 20 ng/mL) had a 54% higher positivity rate compared to those who were vitamin D sufficient (blood level 25-hydroxyvitamin D of at least 30 ng/mL). To achieve a blood level of 25 hydroxyvitamin D of at least 30 ng/mL, the Endocrine Society Guidelines recommends infants, children and adults receive 400-1000 IUs, 600-1000 IUs and 1000-1500 IUs of vitamin D daily respectively. Obese adults require 2-3 times more.

“This simple and inexpensive intervention of taking vitamin D can significantly help reduce risk of infection by this deadly virus,” Dr. Holick concluded.

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