



Can zinc levels predict COVID-19 severity?

Written by Lori Uildriks on March 9, 2021 — [Fact checked](#) by Catherine Carver, MPH



A new study looks at the links between zinc and COVID-19 severity. Stefania Pelfini, La Waziva Photography/Getty Images

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- **The time to clinical recovery was approximately three times less in those with healthy serum zinc levels.**
- **The authors conclude that serum zinc levels could help predict the outcome of individuals with COVID-19.**

All data and statistics are based on publicly available data at the time of publication. Some information may be out of date. Visit our [coronavirus hub](#) and follow our [live updates page](#) for the most recent information on the COVID-19 pandemic.

Zinc  is a trace element that is naturally present in certain foods and also available in dietary supplements. The human body requires zinc to maintain a range of biological functions.

For instance, hundreds of enzymes require zinc to function properly. It also plays a role in protein synthesis, DNA synthesis and cell division, wound healing, and immune function.

Zinc possesses an anti-inflammatory effect and has direct antiviral activity. As a result, zinc deficiency may reduce both innate and adaptive immune responses.

In people with a viral infection, such as SARS-CoV-2, the [innate immune](#)

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Are zinc levels a risk factor?

People with a SARS-CoV-2 infection have a broad spectrum of possible clinical outcomes ranging from asymptomatic to severe disease.

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The scientists also examined the effect of zinc supplementation to block SARS-CoV-2 replication in the laboratory.

Dr. Robert Güerri-Fernández, a doctor at the Infectious Diseases Service of Hospital del Mar and one of the authors of the study, explains the rationale for the study:

“Zinc is an essential element for maintaining a variety of biological processes, and altering its levels causes increased susceptibility to infections and increased inflammatory response. [...] zinc levels and zinc supplementation may prove useful tools to tackle the COVID-19 crisis.”

In the study, which appears in the journal *Nutrients*, the researchers analyzed data from 249 adults admitted to the hospital’s COVID-19 unit between March 9, 2020, and April 1, 2020. The median age of the participants was 65 years, and 51% were male.

In all, 28% of the participants required intensive care unit admission, and 9% died while in the hospital.

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Improved outcomes

Approximately 23% of the participants had low serum zinc levels at admission. Participants with low zinc levels were more likely to experience severe COVID-19 and increased levels of inflammatory markers (interleukin-6 and C-reactive protein).

For the participants with healthy zinc levels, the time to recovery was approximately three times less than for those with a low serum level: 8 days versus 25 days, respectively.

Individuals with low zinc levels had a significantly greater mortality rate (21%) than those in the healthy zinc group (5%).

After adjusting for differences in the participants' age, sex, comorbidities, and disease severity, the study revealed a significant 6% decrease in mortality with every unit increase of serum zinc at admission.

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Laboratory study

In a parallel laboratory experiment, the researchers demonstrated that increased zinc concentrations decreased the replication of SARS-CoV-2 in cell cultures

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The study does have some limitations. For instance, it is observational, so it is not possible to demonstrate causality. In other words, the researchers cannot determine from the findings whether low levels of zinc increase the risk of severe COVID-19 or severe COVID-19 causes zinc to become depleted.

Also, the study is relatively small, and all of the participants came from a single center, which could limit the study's generalizability.

Dr. Güerri-Fernández highlights the study's importance and the need for more work:

“We, therefore, propose this variable as a new parameter to predict the evolution of patients, and we propose initiating clinical trials concerning zinc supplementation in patients with low levels admitted for COVID-19 and implementing programs to administer supplements to groups at risk of having low zinc levels to reduce the effects of the pandemic.”

For live updates on the latest developments regarding the novel coronavirus and COVID-19, click [here](#).

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