

# Abnormal sodium levels in hospitalized patients with COVID-19 predict death or respiratory failure

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Hospitalized patients with COVID-19 and abnormal sodium levels in the blood have an increased risk of experiencing respiratory failure or dying, according to a study published in the Endocrine Society's *Journal of Clinical Endocrinology & Metabolism*.

"This study shows for the first time that patients presenting at the hospital with COVID-19 and low sodium are twice as likely to need intubation or other means of advanced breathing support as those with normal sodium," said lead investigator Ploutarchos Tzoulis, M.D., Ph.D., M.Sc., Honorary Associate Professor in Endocrinology at University College London (UCL) Medical School in London, U.K.

Additionally, the researchers found that patients who develop high sodium levels during the [hospital stay](#) were three times more likely to die than those who have normal sodium levels throughout hospitalization.

"Sodium measurements can inform doctors about which COVID-19 patients are at high risk of deterioration and death," Tzoulis said. "Sodium levels can guide decision making about whether a COVID-19 patient needs hospital admission or monitoring in the intensive care unit."

Sodium is routinely measured as part of bloodwork done for all patients coming to the hospital, and its measurement is inexpensive, Tzoulis noted. Sodium is an essential mineral and helps regulate [fluid](#) volume in the body and blood pressure.

The study was conducted in 488 adults with COVID-19 admitted to two London hospitals, UCL Hospital and Whittington Hospital, over an eight-week period last year. The 277 men and 211 women had a median age of 68 years. They had a median hospital stay of eight days.

Nearly 32 percent of COVID-19 patients with low sodium levels at admission needed a breathing tube and ventilator or oxygen through a [face mask](#) compared with only 17.5 percent of patients whose sodium values were normal, the investigators reported. Unlike excess sodium in the blood, low sodium levels had no association with an [increased risk](#) of dying in the hospital, Tzoulis said.

Among patients with high sodium levels at any time during their hospital stay, nearly 56 percent died versus about 21 percent of patients whose sodium remained normal, the data showed.

Doctors usually treat high sodium levels with intravenous fluids, and low sodium may require [intravenous fluids](#), fluid restriction or medications. However, both conditions are often underestimated and undertreated, Tzoulis said.

Fluid losses due to diarrhea, vomiting, sweating,

and not drinking enough water can lead to high sodium levels. Therefore, Tzoulis stressed the importance of avoiding dehydration during a hospital admission for COVID-19.

**More information:** Ploutarchos Tzoulis et al. Dysnatremia is a predictor for morbidity and mortality in hospitalized patients with COVID-19, *The Journal of Clinical Endocrinology & Metabolism* (2021). DOI: [10.1210/clinem/dgab107](https://doi.org/10.1210/clinem/dgab107)

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