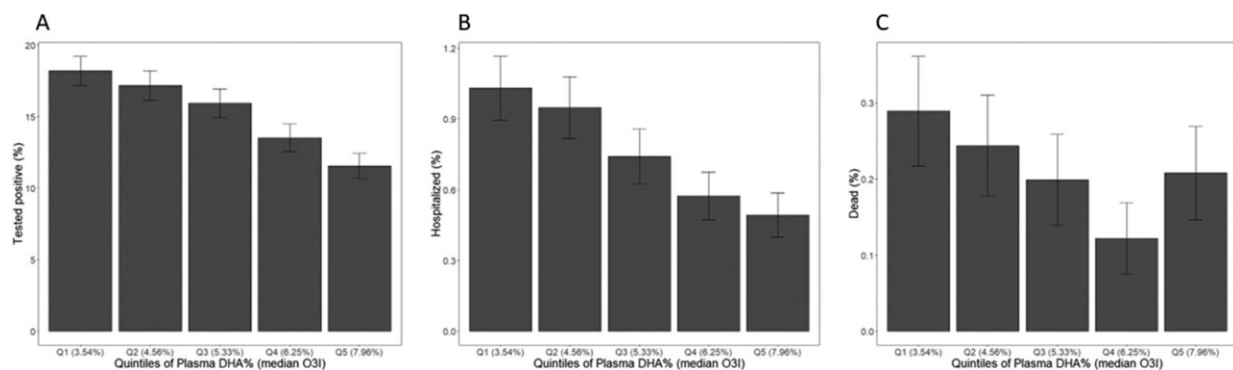


Study shows those with a higher omega-3 index are more protected from severe COVID infection

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The percent of individuals experiencing coronavirus disease 2019 (COVID-19) outcomes between 1 January, 2020, and 23 March, 2021, by quintile of the plasma DHA%. The median estimated Omega-3 Index (O3I) of each quintile is also shown. Percent testing positive for severe acute respiratory syndrome coronavirus 2 (n = 26,597) (A), percent hospitalized with COVID-19 (n = 110,584) (B), and percent dying with COVID-19 (n = 110,584) (C). Credit: *The American Journal of Clinical Nutrition* (2023). DOI: 10.1016/j.ajcnut.2022.11.011

A study just published in the *American Journal of Clinical Nutrition* (AJCN) explored the role of omega-3 fatty acids, especially EPA and DHA, and whether they might be protective against contracting and/or suffering adverse outcomes of COVID-19 infection.

The study compared the risk for three COVID-19 outcomes: 1-testing positive, 2-hospitalization, and 3-death as a function of baseline plasma DHA levels.

DHA levels (% of total [fatty acids](#)) were measured by Nuclear Magnetic Resonance (NMR) spectroscopy but were converted to Omega-3 Index (red blood cell EPA+DHA%) for this analysis. The three outcomes and relevant covariates were available for 110,584 subjects (hospitalization and death) and for 26,595 ever-tested subjects (positive COVID-19 PCR test result) via the UK Biobank [prospective cohort study](#). These COVID-19 outcomes were assessed between January 2020 and March 2021.

In the fully adjusted models, subjects in quintile 5 (with the highest Omega-3 Index levels) were 21% less likely to test positive than those in quintile 1, and the risk for a positive test was 8% lower for each 1-SD (standard deviation) increase in plasma DHA%. Quintile 5 subjects were also 26% less likely to be hospitalized than those in quintile 1, and risk for hospitalization was 11% lower per 1-SD increase in DHA%.

For death with COVID-19, risk was monotonically lower through quintile 4, but in quintile 5, the risk reduction was partially attenuated and became non-significant. Estimated Omega-3 Index values across the five DHA quintiles ranged from 3.5% (quintile 1) to 8% (quintile 5).

"These values comport well with the Omega-3 Index risk cut points [originally proposed in 2004 for death from [cardiovascular disease](#)] of 8% (low risk) and imply that these target levels apply to COVID-19 outcomes as well," researchers noted in their paper.

The investigators also point out that South Korea and Japan have reported an extremely low severity of COVID-19 disease and that although masking practices, social distancing policies and other

population-wide interventions no doubt contributed to this, it is interesting to note that the Omega-3 Index values of healthy South Korean and Japanese individuals are about 8-12% and 7-11% respectively, which is much higher compared to an Omega-3 Index of 4-5% in Western populations such as the United States.

"A worldwide pattern linking higher omega-3 fatty acid intakes with lower rates of death with COVID-19 was documented by Vivar-Sierra et al. Although only suggestive, this observation adds further support for a potential role of omega-3s EPA and DHA in the prevention of fatal COVID-19 disease," the researchers said.

"This study confirms previous findings that low omega-3 status is associated with increased risk for hospitalization with COVID-19. We extended these findings by also showing reduced risk for testing positive with the infection and by providing evidence that the risk for death may also be reduced," said Dr. William S. Harris, Ph.D., FASN, President, Fatty Acid Research Institute (FARI).

"Furthermore, we identified the Omega-3 Index levels associated with the least (8%) protection from COVID-19. Altogether these results support the practice of increasing consumption of oily fish like salmon or omega-3 fish oil supplements as a potential risk reduction strategy when it comes to COVID-19."

Dr. Philip Calder, who wrote an editorial accompanying this publication, said these findings suggest that consuming more long-chain omega-3 fatty acids (EPA and DHA) should be encouraged as a strategy to reduce the impact of the ongoing SARS-CoV-2 pandemic and of future respiratory virus infection outbreaks. Dr. Calder, BSc(Hons), Ph.D., DPhil, RNutr, FSB, FAFN, is Professor of Nutritional Immunology within Medicine at the University of Southampton, UK.

More information: William S. Harris et al, Association between blood N-3 fatty acid levels and the risk of coronavirus disease 2019 in the UK Biobank, *The American Journal of Clinical Nutrition* (2023). [DOI: 10.1016/j.ajcnut.2022.11.011](https://doi.org/10.1016/j.ajcnut.2022.11.011)

Philip C. Calder, Bioactive omega-3 fatty acids are associated with reduced risk and severity of SARS-CoV-2 infection, *The American Journal of Clinical Nutrition* (2023). [DOI: 10.1016/j.ajcnut.2022.12.007](https://doi.org/10.1016/j.ajcnut.2022.12.007)

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