

The use of Vitamin D at a Population Level Against COVID-19

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Key Findings: **1) There is no evidence linking low vitamin D to COVID-19**
2) Vitamin D should not be promoted as being protective against COVID-19

- Vitamin D is currently at the centre of the discussion on the use of dietary supplements against COVID-19. **Although low vitamin D is correlated to COVID-19, the relationship is not one of causation.**
- Using genetic information, we know of a number of common mutations that predispose people to naturally higher vitamin D levels. Each of these mutations has a role in the metabolism of vitamin D in our bodies and is inherited independently of other characteristics. Thus, our weight, body mass index, income or education, diabetes and heart disease - all correlated with COVID-19 - randomly occur in relation to our vitamin D causing genes.
- Genetic mutations separate the population in groups that only differ in their predisposition to higher vitamin D levels. If vitamin D is able to prevent, or moderate, COVID-19, those carrying these mutations in their genome will be less likely to have COVID-19 or be severely affected from it. The same idea applies for genetic mutations predisposing people to have very low levels of vitamin D, described as vitamin D deficiency.
- Using genetic mutations associated with vitamin D levels measured in the blood of more than 120,000 people and with vitamin D deficiency measured in more than 440,000 people, we find that these mutations are neither over- or under- represented in those that tested positive for the virus Vs those testing negative, or those that tested positive and required hospitalisation Vs those that tested positive and did not need medical assistance. **Our results suggest that increasing vitamin D levels, or decreasing vitamin D deficiency, will not change susceptibility to the virus or the severity of COVID-19.**¹
- Promoting vitamin D as protective against COVID-19 therefore can have unintended consequences in population behaviour. Those consuming vitamin D supplements may erroneously assume that they are immune to the virus and not adhere to protective measures, thus putting themselves and their contacts in danger. **As a consequence, Vitamin D should not be promoted as being protective against COVID-19.**

¹ Amin and Drenos (2021) No evidence that vitamin D is able to prevent or affect the severity of COVID-19 in individuals with European ancestry: a Mendelian randomisation study of open data. *British Medical Journal - Nutrition, Prevention & Health*. Available at: <https://nutrition.bmj.com/content/early/2021/01/07/bminph-2020-000151>