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Evidence does not support vitamin D for reducing respiratory infections, reviews conclude

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Two rapid reviews by public health agencies in England have concluded there is insufficient evidence to determine whether vitamin D supplementations could have a role in reducing the risk of respiratory tract infections, including covid-19.

Two weeks ago Public Health England commissioned the Scientific Advisory Commission on Nutrition (SACN) to examine new evidence on whether vitamin D supplementation could reduce the risk of acute respiratory tract infections and, at the same time, the National Institute for Health and Care Excellence (NICE) launched a review of emerging evidence on vitamin D and the prevention and treatment of covid-19.¹

The SACN review assessed evidence on vitamin D and acute respiratory tract infections, other than covid-19, published since its last review in 2016, and concluded that the available evidence does not support vitamin D supplementation to prevent acute respiratory tract infections in the general UK population.² The evidence assessed included a widely cited systematic review and meta-analysis published in *The BMJ* in 2017 which reported some benefit.³

One of the authors of the *BMJ* review, Adrian Martineau, professor of respiratory infection and immunity at Queen Mary University of London, said that SACN rightly highlighted that the results of five subsequent randomised controlled trials they identified had been mixed. But he added that SACN had not attempted to analyse pooled data from the trials and had not considered several other seemingly relevant trials.

“My group is in the final stages of an updated meta-analysis, including data from the new trials identified by SACN as well as nine others. We hope to submit our findings next month,” he said.

NICE’s rapid evidence summary looked specifically at emerging evidence on the role of vitamin D in relation to covid-19 and concluded that there is currently no evidence to support vitamin D supplements reducing the risk or severity of covid-19.⁴

The agency’s researchers evaluated five observational studies on vitamin D and covid-19 published on or before 18 June 2020, and said that all had a high risk of bias because of the very low quality of evidence. There is currently no data from clinical trials.

Martineau said, “Vitamin D enthusiasts will point to a large number of other studies on pre-print websites that were not included in this review. These studies have not yet undergone peer review, however, so their findings should not be relied on to guide clinical practice or public health policy. The report makes no comment on the need for research into vitamin D and covid-19.”

Paul Chrisp, director for the Centre for Guidelines at NICE, said, “We know that research on this subject is ongoing, and NICE is continuing to monitor new published evidence.”

A third rapid review—a preprint from the Royal Society—has concluded that vitamin D deficiency is associated with an increased risk of respiratory viral infections and that it is “biologically plausible” that vitamin D deficiency may contribute to susceptibility to covid-19 infection because such a deficiency is likely to cause immune dysregulation, which may reduce the first line of defence against covid-19.⁵ It calls on the government to provide a stronger public message around existing recommendations for vitamin D intake, and for more research into whether vitamin D deficiency might contribute to increased covid-19 risk seen in elderly and black, Asian, and minority ethnic (BAME) groups.

In April the government updated its advice on vitamin D supplementation to protect bone and muscle health, urging everyone to take a daily 10 µg supplement to mitigate the effects of reduced time outdoors as a consequence of lockdown. The benefits of supplements are emphasised for people from black and minority ethnic backgrounds, who may not get enough vitamin D from sunlight.

The SACN 2016 review recommended further research on “whether there are differences in dietary vitamin D requirements of ethnic groups in the UK.”

1 Torjesen I. Covid-19: Public health agencies review whether vitamin D supplements could reduce risk. *BMJ* 2020;369:m2475. doi: 10.1136/bmj.m2475 pmid: 32561509

2 Scientific Advisory Commission on Nutrition. Rapid review: vitamin D and acute respiratory tract infections, June 2020. <https://app.box.com/s/g0ldpth1upfd7fw763ew3aqa3c0pyvky>.

3 Martineau AR, Jolliffe DA, Hooper RL, et al. Vitamin D supplementation to prevent acute respiratory tract infections: systematic review and meta-analysis of individual participant data. *BMJ* 2017;356:i6583. doi: 10.1136/bmj.i6583 pmid: 28202713

4 NICE. Covid 19 rapid evidence summary: vitamin D for covid-19 evidence summary. 29 June 2020. www.nice.org.uk/advice/es28/chapter/Key-messages.

5 Royal Society. Vitamin D and covid-19. 18 June 2020. <https://royalsociety.org/-/media/policy/projects/set-c/set-c-vitamin-d-and-covid-19.pdf>.

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