

Vitamin D protects against severe asthma attacks

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Taking oral vitamin D supplements in addition to standard asthma medication could halve the risk of asthma attacks requiring hospital attendance, according to research led by Queen Mary University of London (QMUL).

Asthma affects more than 300 million people worldwide and is estimated to cause almost 400,000 deaths annually. Asthma deaths arise primarily during episodes of acute worsening of symptoms, known as attacks or 'exacerbations', which are commonly triggered by viral [upper respiratory infections](#).

Vitamin D is thought to protect against such attacks by boosting immune responses to respiratory viruses and dampening down harmful airway inflammation.

The new study, funded by the National Institute for Health Research, and published in *The Lancet Respiratory Medicine*, collated and analysed the individual data from 955 participants in seven randomised controlled trials, which tested the use of vitamin D supplements.

Overall, the researchers found that vitamin D supplementation resulted in:

- a 30 per cent reduction in the rate of [asthma](#) attacks requiring treatment with steroid tablets or injections - from 0.43 events per person per year to 0.30.
- a 50 per cent reduction in the risk of experiencing at least one [asthma attack](#) requiring Accident and Emergency Department attendance and/or hospitalisation - from 6 per cent of people experiencing such an event to 3 per cent.

Vitamin D supplementation was found to be safe at the doses administered. No instances of excessively high calcium levels or renal stones were seen, and serious adverse events were evenly distributed between participants taking vitamin D and those on placebo.

Lead researcher Professor Adrian Martineau said: "These results add to the ever growing body of evidence that vitamin D can support immune function as well as bone health. On average, three people in the UK die from asthma attacks every day. Vitamin D is safe to take and relatively inexpensive so supplementation represents a potentially cost-effective strategy to reduce this problem."

The team's use of individual participant data also allowed them to query the extent to which different groups respond to vitamin D supplementation, in more detail than previous studies.

In particular, vitamin D supplementation was found to have a strong and statistically-significant protective effect in participants who had low vitamin D levels to start with. These participants saw a 55 per cent reduction in the rate of asthma exacerbations requiring treatment with steroid tablets or injections - from 0.42 events per person per year to 0.19.

However, due to relatively small numbers of patients within sub-groups, the researchers caution that they did not find definitive evidence to show that effects of vitamin D supplementation differ according to baseline [vitamin D](#) status.

Professor Hywel Williams, Director of the NIHR Health Technology Assessment Programme, said: "The results of this NIHR-funded study brings together evidence from several other studies from over the world and is an important contribution to reducing uncertainties on whether Vitamin D is helpful for asthma - a common condition that impacts on many thousands of people worldwide."

Dr David Jolliffe from QMUL, first author on the paper, added: "Our results are largely based on data from adults with mild to moderate asthma: children and adults with severe asthma were relatively under-represented in the dataset, so our findings cannot necessarily be generalised to these patient groups at this stage. Further clinical trials are on-going internationally, and we hope to include data from them in a future analysis to determine whether the promise of today's results is confirmed in an even larger and more diverse group of patients."

More information: 'Vitamin D supplementation to prevent asthma exacerbations: systematic review and meta-analysis of individual participant data' *The Lancet Respiratory Medicine*, [DOI: 10.1016/S2213-2600\(17\)30346-6](#)

Provided by Queen Mary, University of London

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