

Vitamin D can help infection-prone patients avoid respiratory tract infection

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Treating infection-prone patients over a 12-month period with high doses of vitamin D reduces their risk of developing respiratory tract infection – and consequently their antibiotic requirement. This according to a new study by researchers at Karolinska Institutet and Karolinska University Hospital published in the online scientific journal *BMJ Open*.

"Our research can have important implications for patients with recurrent infections or a compromised immune defence, such as a lack of [antibodies](#), and can also help to prevent the emerging resistance to [antibiotics](#) that come from overuse," says Peter Bergman, researcher at Karolinska Institutet's Department of Laboratory Medicine and doctor at Karolinska University Hospital's [Immunodeficiency](#) Unit. "On the other hand, there doesn't seem to be anything to support the idea that [vitamin D](#) would help otherwise healthy people with normal, temporary respiratory tract infections."

Vitamin D is synthesised in the skin through exposure to [sunlight](#) and obtained through certain foods. In Sweden there is a [seasonal variation](#) in vitamin D in the blood, the trough coming during the darker half of the year. Studies have shown that low levels of vitamin D can increase the risk of infection, and it has long been known that the vitamin can also activate the [immune defence](#).

For the present study now published in *BMJ Open* the researchers examined whether treatment with vitamin D can prevent and relieve respiratory tract infections in particularly infection-prone patients. All

the 140 participants from the Immunodeficiency Unit had symptoms of disease in their respiratory tracts for at least 42 days prior to the study. The patients were randomly divided into two groups, one of which received vitamin D in relatively high doses, the other a [placebo](#). They were also asked to keep a diary recording their state of health every day during the year-long study period.

The results show that symptoms of respiratory tract infection declined by almost a quarter and the use of antibiotics by almost half. Vitamin D treatment was also tolerated well by all patients and gave no serious side-effects.

The effect of vitamin D on respiratory tract infection is controversial, and a major study from New Zealand published recently in the scientific journal JAMA found that it did not reduce the incidence or severity of viral [respiratory tract infections](#). However, the present study differs from the JAMA study in several important respects, which could explain their different results. The JAMA study examined a group of healthy people with initially normal levels of vitamin D in the blood, and used bolus dose administration (i.e. large doses on fewer occasions), which is thought to be less effective than daily doses.

"However, the most important difference is probably due to the fact that our participants had much lower initial levels of vitamin D than those in the New Zealand study," says Dr Anna-Carin Norlin, doctoral student and co-lead author of the study along with Dr Bergman. "There is evidence from previous studies that vitamin D supplements are only effective in patients who fall well below the recommended level, which also suggests that it would be wise to check the vitamin D levels of patients with recurrent infections."

More information: 'Vitamin D3 supplementation in patients with frequent respiratory tract infections - a randomized and double blind

intervention study', Bergman P*, Norlin AC*, Hansen S, Rekha RS, Agerberth B, Björkhem-Bergman L, Ekström L, Lindh JD, Andersson J (*equal contribution), BMJ Open, online 13 December 2012.

Provided by Karolinska Institutet

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