

Forget C, D may be the vitamin for cold and flu protection: Study

By Stephen Daniells, 25-Feb-2009

Increased levels of vitamin D may protect against common respiratory infections such as cold and flu, according to new findings from the US.



According to findings of a study with about 19,000 adults and adolescents, people with the lowest average levels of **vitamin D** were about 40 per cent more likely to have a recent respiratory infection, compared to those with higher vitamin D levels.

The findings, published in this week's *Archives of Internal Medicine*, indicated that increased intakes of the sunshine vitamin may be an important way to prime the immune system against disorders like the common cold.

"To our knowledge, this is the first population-based study to evaluate and demonstrate an association between serum 25(OH)D level and [upper respiratory tract infections]," wrote lead author of the study Adit Ginde, MD from the University of Colorado, Denver.

"The association seems to be robust, with a clinically and statistically significant association present in all seasons and when controlling for potential confounders."

Out with C, in with D?

In background information in their paper, Ginde and his co-workers note that for many decades, consumers have looked to vitamin C for the prevention and treatment of upper respiratory tract infections (URTIs) "despite the lack of convincing evidence of benefit in community populations".

Furthermore, the segment of cold and/or flu prevention, and 'immune boosting' remains among the top reasons that Americans take vitamin and herbal supplements. The study represents the first to report a 'robust' association between vitamin D and respiratory health.

Vitamin D refers to two biologically inactive precursors - D3, also known as cholecalciferol, and D2, also known as ergocalciferol. Both D3 and D2 precursors are hydroxylated in the liver and kidneys to form

25-hydroxyvitamin D (25(OH)D), the non-active 'storage' form, and 1,25-dihydroxyvitamin D (1,25(OH)₂D), the biologically active form that is tightly controlled by the body.

Benefits for those most at risk

While low vitamin D levels were associated with increased risks of cold and flu in 'healthy' people, the researchers noted that low levels were linked to even higher risks in people with chronic respiratory disorders, such as asthma and chronic obstructive pulmonary disease (COPD), and emphysema.



The observations were based on data from the Third National Health and Nutrition Examination Survey (NHANES III). Blood samples from the 18,883 adults and adolescents allowed the researchers to measure 25(OH)D levels.

The lowest average vitamin D blood levels, defined as less than 10 nanograms per milliliter (ng/mL) of blood, were associated with a 40 per cent increased risk of respiratory infection, compared to the highest average levels of 30 ng/mL or higher.

The links were observed in all seasons, said the researchers. For people with a history of asthma, low vitamin D levels were associated with a risk of respiratory tract infection five times more than those with high levels, while among COPD patients, respiratory infections were twice as common among those with vitamin D deficiency.

"A respiratory infection in someone with otherwise healthy lungs usually causes a few days of relatively mild symptoms," explained senior author of the study, Carlos Camargo MD, DrPH, from MGH Department of Emergency Medicine.

"But respiratory infections in individuals with an underlying lung disease can cause serious attacks of asthma or COPD that may require urgent office visits, emergency department visits or hospitalizations. So the impact of preventing infections in these patients could be very large."

The researchers said that clinical trials to test vitamin D supplements to boost immunity and fight respiratory infections are being planned.

"While it's too early to make any definitive recommendations, many Americans also need more vitamin D for its bone and general health benefits. . Clinicians and laypeople should stay tuned as this exciting area

of research continues to expand," said Ginde.

In terms of the mechanism, Ginde and his co-workers note that the vitamin plays a defining role in the production of a type of protein called cathelicidins that are found in many cells including microphages that play a role in immunity.

The science builds for vitamin D

Commenting on the study, Andrew Shao, PhD, vice president, scientific and regulatory affairs, for the Council for Responsible Nutrition (CRN), a supplements trade association, said it adds to growth of science supporting the benefits of vitamin D.



"The majority of Americans continue to fall short in getting adequate amounts of vitamin D through diet alone. Given that vitamin D is relatively low in most foods, and there are serious risks associated with excessive sun exposure, dietary supplements are an important alternative to achieving a sufficient intake," said Dr Shao.

"While this study on its own does not mean that higher vitamin D intake will ensure that you don't get an upper respiratory tract infection this winter, it is consistent with, and adds to, the relatively new body of evidence showing that vitamin D plays a critical role in immune function."

Source: Archives of Internal Medicine 2009, Volume 169, Issue 4, Pages 384-390 "Association Between Serum 25-Hydroxyvitamin D Level and Upper Respiratory Tract Infection in the Third National Health and Nutrition Examination Survey" Authors: A.A. Ginde, J.M. Mansbach, C.A. Camargo Jr