

Vitamin D may protect against lung function impairment and decline in smokers

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Vitamin D deficiency is associated with worse lung function and more rapid decline in lung function over time in smokers, suggesting that vitamin D may have a protective effect against the effects of smoking on lung function, according to a new study from researchers in Boston.

"We examined the relationship between [vitamin D deficiency](#), smoking, [lung function](#), and the rate of lung function decline over a 20 year period in a cohort of 626 adult [white men](#) from the Normative Aging Study," said lead author Nancy E. Lange, MD, MPH, of the Channing Laboratory, Brigham and Women's Hospital. "We found that vitamin D sufficiency (defined as serum vitamin D levels of >20 ng/ml) had a protective effect on lung function and the rate of lung function decline in smokers."

The findings were published online ahead of print publication in the American Thoracic Society's *American Journal of Respiratory and [Critical Care Medicine](#)*.

In the study, vitamin D levels were assessed at three different time points between 1984 and 2003, and lung function was assessed concurrently with spirometry.

In vitamin D deficient subjects, for each one unit increase in pack-years of smoking, mean forced expiratory volume in one second ([FEV1](#)) was 12 ml lower, compared with a mean reduction of 6.5 ml among subjects who were not vitamin D deficient. In longitudinal models, vitamin D

deficiency exacerbated the effect of pack years of smoking on the decline in FEV1 over time.

No significant effect of vitamin D levels on lung function or lung function decline were observed in the overall study cohort, which included both smokers and non-smokers.

"Our results suggest that vitamin D might modify the damaging effects of smoking on lung function," said Dr. Lange. "These effects might be due to vitamin D's anti-inflammatory and anti-oxidant properties."

The study has some limitations, including that the data is observational only and not a trial, that vitamin D levels fluctuate over time, and that the study has limited generalizability due to the cohort being all elderly men.

"If these results can be replicated in other studies, they could be of great public health importance," said Dr. Lange. "Future research should also examine whether vitamin D protects against lung damage from other sources, such as air pollution."

"While these results are intriguing, the health hazards associated with smoking far outweigh any protective effect that vitamin D may have on lung function," said Alexander C. White MS, MD, chair of the [American Thoracic Society](#)'s Tobacco Action Committee. "First and foremost, patients who smoke should be fully informed about the health consequences of smoking and in addition be given all possible assistance to help them quit smoking."

Provided by American Thoracic Society

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