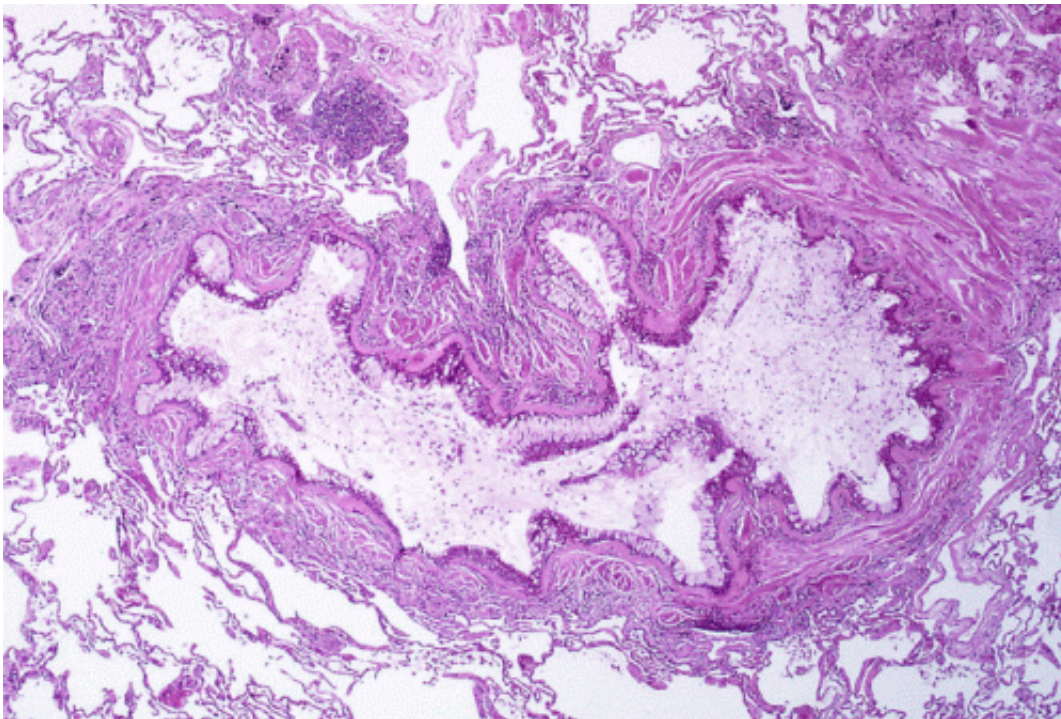


Can asthma be controlled with a vitamin supplement?

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Obstruction of the lumen of a bronchiole by mucoid exudate, goblet cell metaplasia, and epithelial basement membrane thickening in a person with asthma. Credit: Yale Rosen/Wikipedia/CC BY-SA 2.0

The shortness of breath experienced by the nearly 26 million Americans who suffer from asthma is usually the result of inflammation of the airways. People with asthma typically use albuterol for acute attacks and inhaled steroids to limit chronic inflammation. Both medications come

with side effects.

But what if it was possible to keep asthma under control by changing one's diet or taking a [vitamin supplement](#)? It may happen sooner than you think.

Preliminary research results from the UNC School of Medicine indicate that a type of vitamin E known as gamma tocopherol may reduce eosinophilic inflammation – a kind of airway inflammation common in asthma patients. The results were published in the *Journal of Allergy & Clinical Immunology*.

"We started looking into vitamin E because epidemiologic data suggested that people with high amounts of vitamin E in their diet were less prone to asthma and allergic disease," said Michelle Hernandez, MD, professor of pediatrics and senior author of the study.

There are several different isoforms of vitamin E. The type commonly found in vitamin supplements – alpha tocopherol – has been studied previously, but the results suggested that alpha tocopherol was not particularly effective. Even worse, the alpha isoform seemed to be associated with an increased risk for [hemorrhagic stroke](#).

So UNC researchers took a different tack and asked whether the kind of vitamin E being used might have an effect on the outcome. They began looking more closely at gamma tocopherol, the type of vitamin E commonly found in a diet rich in nuts and nut oil. According to study first author Allison Burbank, MD, assistant professor of pediatrics, the gamma isoform has properties that the alpha doesn't.

"While the alpha isoform does have antioxidant activities, gamma tocopherol has both an antioxidant and a very unique anti-inflammatory action as well," she said "That anti-inflammatory effect is what we think

made the difference in this study."

Participants in the study were randomized into two groups that received either gamma tocopherol supplement or a placebo for two weeks. At the end of that period, they were asked to cough up sputum. They also underwent an LPS challenge – inhaling a substance that causes inflammation in the lung and then coughing up more sputum, allowing researchers to measure how they responded to the substance used in the challenge.

After a three week "washout period" where they took nothing, subjects were placed in the other group: if they took the supplement for the first two weeks, they took a placebo for the second period.

"The advantage of a cross-over design like this is that we are able to compare the subjects to themselves," said Burbank. "And what we found is that when people were taking the vitamin E supplement, they had less eosinophilic inflammation."

In addition to decreased inflammation, those who were taking vitamin E were also found to have lower levels of proteins called mucins, which affect the stickiness of mucus. Mucins are often elevated in asthmatics.

"The fact that the supplement targeted the eosinophils – the main cells we worry most about in [asthma treatment](#) – was really telling," said Hernandez. "And we were also excited to see that the supplement had an effect on how mucus moves through the airway. When there are fewer mucins, the mucus is less sticky and patients are able to clear it better, which means there isn't as much pro-inflammatory mucus staying in the lungs."

Hernandez said that the next step is to expand the scope of the study.

"We'd like to do this over a longer time frame and establish whether it's safe, in less healthy adults," Hernandez said. "We want to look more closely at how it affects things like lung function and coagulations markers, because of that risk of hemorrhagic stroke associated with [alpha tocopherol](#). We want to see if there are any unanticipated effects of the supplementation regimen."

For Burbank, the goal is ultimately to improve outcomes for patients.

"We want to know if people with asthma increase intake of [vitamin E](#), did they have fewer asthma attacks? Did they use their rescue inhalers less? Did they go to the hospital or the emergency room fewer times because? I think that's the goal of any [asthma](#) treatment. These are the things we care about and what patients care about."

More information: Allison J. Burbank et al. Gamma tocopherol-enriched supplement reduces sputum eosinophilia and endotoxin-induced sputum neutrophilia in volunteers with asthma, *Journal of Allergy and Clinical Immunology* (2017). [DOI: 10.1016/j.jaci.2017.06.029](#)

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