

Low Vitamin D Associated with Worse Asthma

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Denver, CO — Low levels of vitamin D in asthma patients are associated with reduced lung function and less response to steroid medications, according to researchers at National Jewish Health.

"Our findings suggest that vitamin D plays a significant role in asthma severity and response to treatment," said Rand Sutherland, MD, MPH, Chief of the Pulmonary Division at National Jewish Health. "This raises the possibility that vitamin D supplementation in asthma patients with low levels of vitamin D may improve their asthma."

The researchers published their findings online today in the *American Journal of Respiratory and Critical Care Medicine*.

Vitamin D has long been recognized as essential for bone health. Recently, it has been associated with a variety of benefits ranging from fighting colds to cancer. However, several reports have indicated that people are actually getting less vitamin D than they used to, often resulting in lower blood levels than the 30 nanograms per milliliter (ng/mL) generally considered healthy.

Inhaled steroids are the most effective controller medication for asthma, helping the majority of patients control their disease. However, individual patients respond differently to the medications, and a substantial number do not achieve optimal control despite high doses of inhaled steroids. Some evidence has suggested that vitamin D might play a role in response to steroids.

The researchers evaluated 54 adults with persistent asthma. They found that higher levels of vitamin D were associated with better lung function; patients could exhale 21 more milliliters of air in one second for each ng/mL increase in vitamin D levels. Patients with vitamin D levels below 30 ng/mL had airways that were almost twice as sensitive to the airway irritant methacholine, commonly used to evaluate the likelihood of airway constriction, as patients with vitamin D levels above 30 ng/mL. In cells taken from the patients, higher levels of vitamin D were associated with increased responsiveness to the steroid dexamethasone.

The researchers also found that higher body mass was associated with lower vitamin D levels, suggesting that overweight and obese asthmatics may be likely to experience the consequences of low vitamin D.

"Our findings suggest that vitamin D levels influence a number of important features of asthma, including lung function, bronchospasm and therapeutic response to steroids," said Dr. Sutherland. "The next question to answer is whether giving supplemental vitamin D will lead to clinical improvements in patients with asthma. We are developing prospective studies to answer that."

National Jewish Health is known worldwide for treatment of patients with respiratory, cardiac, immune and related disorders, and for groundbreaking medical research. Founded in 1899 as a nonprofit hospital, National Jewish remains the only facility in the world dedicated exclusively to these disorders. For 12 consecutive years, *U.S. News & World Report* has ranked National Jewish the #1 respiratory hospital in the nation.

National Jewish Health is the leading respiratory hospital in the nation. Founded 120 years ago as a nonprofit hospital, National Jewish Health today is the only facility in the world dedicated exclusively to groundbreaking medical research and treatment of patients with respiratory, cardiac, immune and related disorders. Patients and families come to National Jewish Health from around the world to receive cutting-edge, comprehensive, coordinated care. To learn more, visit the [media resources page](#).

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