

Evidence points to fish oil to fight asthma

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Children with asthma use inhalers to relieve some of their symptoms, which include coughing, wheezing, chest tightness and shortness of breath. Credit: Tradimus / Wikimedia commons / [CC BY-SA 3.0](#)

University of Rochester Medical Center scientists have discovered new essential information about omega 3 fatty acids contained in fish oil and how they could be used for asthma patients.

In a paper published in the *Journal of Clinical Investigation—Insight*, researchers using cell cultures from local [asthma](#) patients, found that:

- Omega-3 fatty acid products can reduce the production of IgE, the antibodies that cause allergic reactions and [asthma symptoms](#) in people with milder cases of asthma;
- But in patients with [severe asthma](#) who use high doses of oral steroids, the omega-3 [fatty acids](#) are less effective because the corticosteroids block the beneficial effects.

Lead author Richard P. Phipps, Ph.D., the Wright Family Research Professor of Environmental Medicine, and his lab had previously shown that certain fatty acids contained in fish oil regulate the function of [immune cells](#) (B cells). They wanted to further investigate the effects on asthma.

People with asthma have an imbalance between molecules that dampen inflammation and those that increase inflammation. Using steroids as treatment controls the inflammation and relieves symptoms, but does not cure the underlying disease.

Phipps and his team collected blood from 17 patients at UR Medicine's Mary Parkes Asthma Center and isolated their B immune cells in the laboratory to explore the impact of pure omega-3-derived products on IgE and other molecules that fuel the disease. Co-authors Nina Kim, Ph.D., and Patricia Sime, M.D., the C. Jane and C. Robert Distinguished Chair in Pulmonary Medicine, conducted much of the laboratory and clinical work, and compared the results of the 17 patients to donors of healthy blood cells.

Most of the patients who volunteered for the study were taking corticosteroids in either pill form or by inhaler, depending upon severity of their asthma. Results showed that all responded to the omega-3 fatty acids to some degree, as evidenced by a reduction in the levels of IgE antibodies. But unexpectedly, Phipps said, the cells from a small subset of patients who were taking [oral steroids](#) were less sensitive to the

omega-3 treatment.

Steroids are usually a very effective treatment for asthma. However, although the science is in the early stages, it appears that when corticosteroids are used steadily, in some cases the steroids reduce some of the body's natural ability to fight asthma-related inflammation, Phipps said.

The URMC discovery coincides with a *New England Journal of Medicine* study in late December 2016, showing that prenatal exposure to fish oil reduced the risk of wheeze and asthma in children. Phipps noted that the fish oil used as a dietary supplement in the NEJM study was a special high-quality preparation—and that consumers should use caution when buying fish oil because not all fish oil is the same.

"You really need high-quality, standardized material that's been processed and stored correctly before comparing results from one study to another study," Phipps said. "Our study used the pure, biologically active products in fish oil, known as 17-HDHA, and we've provided a clear line of evidence for why intake of high-quality [fish oil](#) is good."

Omega 3 polyunsaturated fatty acids have been shown to have many health benefits. Once ingested, they convert to special pro-resolving mediators that halt inflammation without also suppressing the immune system. They can be found in foods such as flax seed oil, salmon, tuna, anchovies, and walnuts.

Provided by University of Rochester Medical Center

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