

Persistent childhood asthma linked to COPD

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The development of persistent childhood asthma - characterized by having trouble breathing on an almost daily basis - is not well understood. In most cases, childhood asthma resolves with time, but as many as 20 percent of children with asthma will go on to have potentially severe symptoms in adulthood. In the largest and longest U.S. analysis of persistent asthmatics to date, investigators at Brigham and Women's Hospital (BWH) found a link between persistent childhood asthma and chronic obstructive pulmonary disease (COPD) in early adulthood. The study, published in the *New England Journal of Medicine* on May 12, found that early lung function predicts lung growth later in life, regardless of asthma treatment and smoking exposure.

"This work tells us that persistent [childhood asthma](#) can develop into COPD, something that up until now has not been well described," said Scott T. Weiss, MD, one of the paper's senior authors and Co-Director of the Systems Genetics and Genomics Section of the BWH Channing Division of Network Medicine. "Children who had low lung function at the start of the trial followed a series of predicted growth patterns: most had reduced [lung growth](#) with time and a significant number would go on to meet the criteria for COPD."

The study followed 684 participants in the Childhood Asthma Management Program (CAMP) from ages 5-12 until they were at least 23 years old. Each participant reported once a year to one of eight research centers around the U.S. and Canada to complete lung function measurements like spirometry, a test that records how much air a participant can breathe out in one second.

With these annual recordings, the researchers were able to characterize the patterns of growth in asthmatics' lung function. By the end of the study, 11 percent met the criteria for COPD, a progressive disease that makes breathing difficult. In addition to low lung function at the start of the study, being male also predicted worse outcomes, but this is likely a consequence of higher asthma prevalence in boys. By [early adulthood](#), 75 percent of the children with [persistent asthma](#) displayed an early decline in [lung function](#) and/or reduced lung growth. Treatment did not change these patterns.

"It is astonishing," said co-senior author Robert C. Strunk, MD, professor of pediatrics at Washington University School of Medicine, who died unexpectedly April 28. "For people barely into adulthood to already have COPD is terrible. As the COPD evolves, they are likely to have health problems that will make it difficult to participate in normal day-to-day responsibilities such as holding a job."

"With this understanding, physicians need to identify at-risk children earlier and counsel them about potential preventative measures. Since asthma itself is a risk factor for developing COPD, these patients should be advised against risk related environmental exposures, like smoking, that could intensify their symptoms and increase their COPD risk," said Weiss. "It is important that we recognize this link between persistent childhood asthma and COPD as a potential problem and focus on prevention efforts."

More information: *New England Journal of Medicine*, [DOI: 10.1056/NEJMoa1513737](https://doi.org/10.1056/NEJMoa1513737)

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