

Air filters shown to improve breathing in children with asthma

May 26 2020



(HealthDay)—Daily use of a fine particulate matter air filtration device

can significantly improve airway mechanics and reduce airway resistance in children with asthma, according to a study recently published in *JAMA Pediatrics*.

Xiaoxing Cui, Ph.D., of the Nicholas School of the Environment at Duke University in Durham, North Carolina, and colleagues performed a double-blind study of 43 children with mild-to-moderate asthma (ages ranging from 5 to 13 years) to test the efficacy of daily use of a fine particle (generalized [particulate matter](#) 2.5 μm in size [$\text{PM}_{2.5}$]) filter device. The authors initiated random placement of a working $\text{PM}_{2.5}$ filtration device and a placebo filtration device within the children's bedrooms for two weeks, incorporating a two week washout interval period.

The researchers found that while using the $\text{PM}_{2.5}$ filtration device, the concentrations of $\text{PM}_{2.5}$ within the bedrooms were a mean (SD) of 63.4 percent (35.9 percent) lower than when the placebo filter was used. The use of a true filter also incrementally improved [airway](#) mechanics, shown in peak expiratory flow (1.6 percent) and fractional exhaled nitric oxide (a 27.6 percent reduction). Additionally, the children exhibited a reduction in total airway resistance of 24.4 percent, a reduction of 43.5 percent in small airway resistance, an reduction of 22.2 percent in [resonant frequency](#), and an increase of 73.1 percent in airway reactance.

"These observations support a future clinical trial to assess the efficacy and effectiveness of indoor air filtration in improving small airway pathophysiology that plays a vital role in asthma," the authors write.

More information: [Abstract/Full Text \(subscription or payments may be required\)](#)

Copyright © 2020 [HealthDay](#). All rights reserved.

Citation: Air filters shown to improve breathing in children with asthma (2020, May 26)
retrieved 23 April 2024 from
<https://medicalxpress.com/news/2020-05-air-filters-shown-children-asthma.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.