




# Air pollution susceptibility in children with asthma and obesity: tidal volume as key player?

Judith M. Vonk <sup>1,2,4</sup> and Jolt Roukema<sup>3,4</sup>

<sup>1</sup>University of Groningen, University Medical Center Groningen, Dept of Epidemiology, Groningen, The Netherlands. <sup>2</sup>University of Groningen, University Medical Center Groningen, Groningen Research Center for Asthma and COPD (GRIAC), Groningen, The Netherlands. <sup>3</sup>Radboud University Medical Center, Amalia Children's Hospital, Nijmegen, The Netherlands. <sup>4</sup>Both authors contributed equally.

Corresponding author: Judith M. Vonk ([j.m.vonk@umcg.nl](mailto:j.m.vonk@umcg.nl))



Shareable abstract (@ERSpublications)

**The higher susceptibility to air pollution of asthmatic children with a higher BMI can (partly) be explained by differences in breathing patterns that result in a higher (alveolar) lung deposition of PM<sub>2.5</sub>** <https://bit.ly/3FuNpxM>

**Cite this article as:** Vonk JM, Roukema J. Air pollution susceptibility in children with asthma and obesity: tidal volume as key player? *Eur Respir J* 2022; 59: 2102505 [DOI: 10.1183/13993003.02505-2021].

This single-page version can be shared freely online.

Copyright ©The authors 2022.  
For reproduction rights and  
permissions contact  
[permissions@ersnet.org](mailto:permissions@ersnet.org)

Received: 17 Sept 2021  
Accepted: 3 Oct 2021

Decades of research have clearly shown that higher levels of air pollution have deleterious effects on respiratory and cardiovascular health [1, 2]. In addition, more recent studies have shown that air pollution is also associated with health outcomes that seem less obvious candidates, such as higher systemic inflammation [3], worse kidney function [4], worse cognitive abilities [5] and, very recently, higher incidence and mortality of COVID-19 [6, 7]. Importantly, these health effects of air pollution are also seen in regions with relatively low levels of air pollution, indicating that the current WHO air quality guidelines [8] are insufficient to prevent the negative health effects of air pollution.