

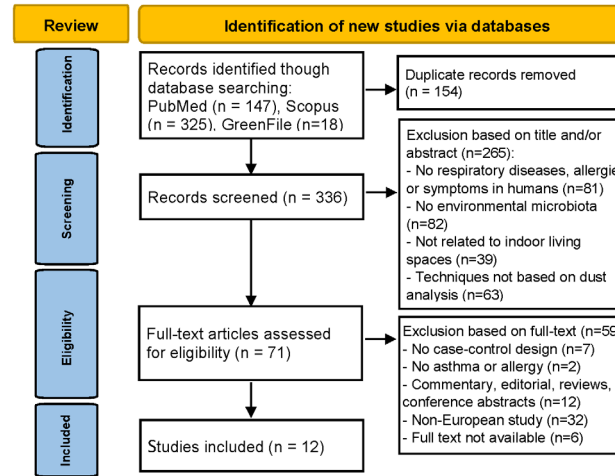
# #399 ASSOCIATION BETWEEN INDOOR ENVIRONMENTAL MICROBIOTA OF LIVING SPACES AND CHRONIC ASTHMA AND RESPIRATORY ALLERGIES IN EUROPE: A SYSTEMATIC REVIEW

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## Methods

We conducted targeted searches on PubMed, GreenFile, and Scopus, including studies from the past decade (last update on May 8, 2023) in European countries that measured indoor environmental microbiomes in domestic dust and involved case groups with asthma or respiratory allergies. We excluded non-research articles and those not in English or French. We used Zotero software for data import.



## Conclusion

There is a call for larger-scale longitudinal studies to establish causality, emphasizing the necessity of integrating both air and dust sample analyses for a comprehensive grasp of environmental microbiota. Additionally, addressing the challenge of comparing heterogeneous study methodologies is crucial.

## (Some) References

Association of indoor dust microbial function and behavior in preschool children  
Tinne Docks, Martin Täubel, Janneke Hogervorst, Leen Luytjens, Katrien Witters, Michelle Plusquin, Maria Valkonen, Tineke Beekun, Anne M. Karvonen, Eija Piippo-Savolainen, Anne Hyvärinen, Juha Pekkanen, Anne M. Karvonen  
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Microbial diversity in homes and the risk of allergic rhinitis and inhalant atopy in two European birth cohorts  
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Type 2-high asthma is associated with a specific indoor mycobiome and microbiome

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Allergy  
Environmental and mucosal microbiota and their role in childhood asthma  
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April 2020, 173(Complete) - Building and Environment

Associations were found between fungal DNA levels in childcare center dust and respiratory symptoms. Higher fungal concentrations were observed in homes with asthmatic children. Indoor humidity and pet presence correlated with microbial agents in mattress dust and asthma outcomes. A total microbial exposure index was proposed as a better asthma predictor. Asthmatic households had lower microbial richness/diversity. High fungal diversity exposure during infancy inversely related to sensitization to airborne allergens.

## Background and Aims

Europe has witnessed a noticeable increase in asthma and allergies, sparking growing interest in the role of environmental microorganisms in these conditions. Our study explores the link between indoor environmental microbiota in European living spaces and asthma/respiratory allergies, with a specific focus on research employing dust-based measurement techniques to ensure comparability.

## Results

We reviewed 490 articles based on title and abstract, with 12 meeting our inclusion criteria. They were conducted in Finland, France, Sweden, Germany, Austria, Greece, the UK, and 1 study included 10 European countries. 8 studies examined microbial diversity in children's homes, while four focused on adults. Sampling techniques, including PCR and DNA sequencing, were used for dust sample analysis.