Air pollution and allergy

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Figure 1. Inverse Relation between the Incidence of Prototypical Infectious Diseases (Panel A) and the Incidence of Immune Disorders (Panel B) from 1950 to 2000.

In Panel A, data concerning infectious diseases are derived from reports of the Centers for Disease Control and Prevention, except for the data on hepatitis A, which are derived from Joussemet et al.12 In Panel B, data on immune disorders are derived from Swarbrick et al.,10 Dubois et al.,13 Tuomilehto et al.,14 and Pugliatti et al.15
Children living near heavy roads exhibit a higher risk for atopic eczema.
Associations of Early Life Exposures and Environmental Factors With Asthma Among Children in Rural and Urban Areas of Guangdong, China

Mulin Feng, MD; Zhaozi Yang, PhD; Liying Fan, MD; Xuxin Lai, PhD; Mo Xian, MD; Xiefei Huang, MD; Yan Chen, MD; Paul C. Schröder, PhD; Marjut Roponen, PhD; Eianca Schaub, MD; Gary W. K. Wong, MD; and Jing Li, MD
Window of susceptibility for environmental impact

Graph showing the odds ratio of childhood eczema across different trimesters of pregnancy and preconceptional period.
Pollen – close look...
Ambrosia Pollen in Europe – spreading with climate change
Betula
Pollen amount

Total Pollen Amount
Pollen grains
Betula

2015

2050

Total Pollen Amount
2060 rcp46
Betula

<2000
2000-4500
4500-7000
>7000

Kilometers

Kilometers
Save environment of allergic patients – where to find?
Alpine region – Save for allergics – or even therapeutic approach?

Damialis et al. STOTEN in press
Tolerance

Loss of tolerance

Allergy

Tolerance → Loss of tolerance → Allergy

Allergic reaction
Pollution and Health

- $\text{NO}_x$, PM2.5, Ozone, $\text{CO}_2$
- Pollen
- Health/Disease
NO$_2$ enhances allergenicity of pollen
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