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Children’s Personal and Microenvironmental Exposures to PM$_{2.5}$ and Ozone in Shanghai, China

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**Study design**
- A randomized, double-blind, crossover study
- 43 asthmatic children living in suburban areas of Shanghai
- True filtration: prefILTER + HEPA + activated carbon (2 weeks)
- Sham filtration: only coarse pre filter (2 weeks)
- Two 48-hour periods of personal monitoring attempted (1 during true & 1 during sham)

**Impacts of filtration on personal exposure**
In most cases purifiers are effective at reducing personal exposure to PM$_{2.5}$ but have no significant impact on O$_3$

A t-test was used to compare the 1-hour P/O ratios (ps0.5)

**Personal exposure by microenvironment**

**Conclusions**
- Portable air purifiers can reduce personal exposure to PM$_{2.5}$.
- The bedroom environment should be targeted for ozone and PM$_{2.5}$ reduction since this is the largest contributor to their personal exposure.
- The bedroom environment is the largest contributor because the children spend the most time in the bedroom.
- Other indoor environments should be prioritized next, since other rooms and classroom are the next largest contributors to personal exposure.

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