
Pesticide Exposure and Health Effects

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Pesticide exposure

- **Ingestion**
 - Food
 - Water
 - Soil/dust
 - Breastmilk
 - Occupational
- **Inhalation**
- **Dermal absorption**
- **Maternal-fetal transfer**

Sensitivity and vulnerability vary

Sensitivity

- Age
- Health conditions
- Pregnancy
- Genetic polymorphisms

Vulnerability

- Age
- No or inadequate protective equipment while working with pesticides
- Tracking pesticides home from work
- Living close to pesticide application
- Labored breathing from exertion or exercise
- Behavior

Children can be more sensitive to pesticide exposures than adults

- Metabolic differences
 - Children's bodies can process chemicals differently
 - Higher or lower metabolism
 - Higher absorption
 - Sometimes less efficient detoxifying mechanisms
 - Sometimes do not get rid of chemicals as fast
- Biological sensitivity
 - Exposure during development can have lasting health effects

Children have higher relative environmental exposures than adults

- They drink more for their size
- They inhale more for their size
- They eat more food for their size
- They swallow more dirt for their size

Potential health effects

Health effects occurrence depends on type, amount, duration, and frequency of exposure to a pesticide (information from human or animal studies and events).

- Short-term, high-dose exposures
 - Skin rashes
 - Cough, shortness of breath
 - Vomiting, diarrhea
 - Neurological symptoms like tremors, weakness, seizures
- Long-term, low- or high-dose exposures
 - Learning or developmental disabilities
 - Liver problems
 - Some cancers

How much is unsafe?

- Pesticides are regulated by the US EPA in a process that requires:
 - Dozens of animal studies and other tests to determine safety.
 - EPA to sets limits on how the pesticide may be used, how often it may be used, and what protective clothing or equipment must be used.
 - Labelling of products with necessary warnings and directions for use.
 - Review of all scientific data on the pesticide and development of comprehensive risk assessments.

Thank You