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Program on Breast Cancer and Environmental Risk Factors

SPRECHER
INSTITUTE
for Comparative
Cancer Research

Chemicals and the Risk of Breast Cancer

Frequently Asked Questions

■ Question

In working to get legislation passed limiting the use of chemicals/pesticides on public lands, we meet with the comment "There is no proof." How can we respond to that?

■ Answer

What Is Proof?

It depends on how you define proof. To show that a chemical *causes* cancer in humans, you do need a substantial amount of evidence. However, the absence of *proof* does not necessarily mean the absence of *harm*. In order to have "no proof," two conditions must be met:

- Adequate studies evaluating cancer risk have been done.
- These studies have not found a harmful effect for the chemical.

For many chemicals, the first condition has not been met. Adequate studies have not been completed. There isn't enough data to form a conclusion. Again, lack of data does not mean you have proven an absence of harm. For many chemicals we have no data either way.

Regulations and Laws Don't Require Absolute Proof

Regulatory agencies don't act only in the cases where there is absolute proof of harm to humans. Instead, they estimate risk using a variety of methods. For example, because human data is often unavailable, agencies may use laboratory animal studies in conjunction with other tests to help predict the cancer risk to humans. The EPA requires that pesticide manufacturers submit the results of animal cancer studies in order to assess the cancer risk of a pesticide before it is registered for use.

The National Toxicology Program's Chemical Testing

Federal agencies like the National Toxicology Program (NTP) use a variety of tests to see if a particular chemical increases cancer risk. Using animals as the test model, the NTP screened over 500 chemicals. Of these about 42 caused breast tumors in laboratory animals. Some of these tumors were invasive cancers and others were benign tumors. Many different types of chemicals have been associated with a higher number of tumors in animal studies including a metal used in semi-conductors and a chemical used to sterilize surgical instruments. Other chemicals associated with a higher number of tumors in animal studies are certain:

- Dyes
- Pesticides
- Solvents

- Flame Retardants
- Pharmaceuticals

A list of chemicals that have been identified by the NTP as causing mammary tumors in rodent studies is in Fact Sheet 45, "[Environmental Chemicals and Breast Cancer Risk: Why is There Concern?](#)" The BCERF [EnviroChem and Cancer Database](#) provides a snapshot of important information about each of the 42 chemicals identified as mammary carcinogens by the National Toxicology Program. The complete database is also available as a [6-page printable document](#).

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