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Aug

## [Research Shows Commonly Used Pesticides Produce Greater Toxic Effect When Mixed](#)

(*Beyond Pesticides*, August 11, 2011) A combination of eleven different kinds of commonly used pyrethroids were tested on mice in a new study which found that, at real-world exposure levels, the insecticides can produce heightened toxicity that is equal to the sum of each insecticide’s individual effect. The mixture of similar-acting insecticides works by over-

stimulating electronic channels in the mouse's brain cells and eventually causing death. This study adds to the growing body of research on the toxicity of pesticide combinations in nature and showcases the need for policy change because the current risk assessment approach to regulating pesticides fails to look at chemical mixtures and [synergistic effects](#).

The U.S. Environmental Protection Agency (EPA) currently regulates on a chemical-by-chemical basis, but as this study demonstrates, interacting chemicals can have synergistic effects at very low levels, where a “chemical cocktail” of multiple interacting chemicals combine to have greater effects than expected. Pesticides can also have a cumulative “toxic loading” effect both in the immediate and long term.

Researchers exposed mice brain cells to eleven different food-use pyrethroid insecticides either singly or in a mixture in the study entitled “[Additivity of pyrethroid actions on sodium influx in cerebrocortical neurons in primary culture](#).” The pyrethroid compounds tested include: [deltamethrin](#), [β-cyfluthrin](#), [cypermethrin](#), [permethrin](#), [bifenthrin](#), [esfenvalerate](#), λ-cyhalothrin, [tefluthrin](#), [fenpropathrin](#), [resmethrin](#) and S-bioallethrin. They are mainly used to control pests on food crops, and are toxic to insects and humans in the same way. They work by targeting vital electrical channels in certain types of brain cells. The chemicals stimulate the electrical signals moving into the cells, which changes neuron function and ultimately leading to paralysis and death.

[Pyrethroids](#) are synthetic versions of pyrethrin, a natural insecticide found in certain species of chrysanthemum. Pyrethroids are suspected endocrine disruptors, have been linked to certain cancers, and are particularly dangerous to aquatic life even at low concentrations. Despite the fact that there are plenty of [effective pest control methods](#) that are not nearly as toxic, these insecticides are some of the most popular household pesticides, available in the form of powders and sprays to control ants, mosquitoes, fleas, flies, and cockroaches. As research unfurls, particularly on the combined effects that these insecticides have, the high-volume uses of pyrethroids are major cause for concern to [human and environmental health](#).

Source: [Environmental Health News](#)

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This entry was posted on Thursday, August 11th, 2011 at 12:01 am and is filed under [Bifenthrin](#), [Cyfluthrin](#), [Deltamethrin](#), [Nervous System Effects](#), [Permethrin](#), [cypermethrin](#), [esfenvalerate](#). You can follow any responses to this entry through the [RSS 2.0](#) feed. You can skip to the end and leave a response. Pinging is currently not allowed.

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