

# Bug spray accumulation in the home

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Warmer temperatures can lead to a flurry of unwelcome guests to our house - flies, mosquitoes, fleas, wasps, bedbugs and lice. Pyrethroids are a common pesticide used to repel these pests, and even though they have been found more or less safe for mammals in laboratory studies, they can cause skin irritation, headache, dizziness and nausea for more sensitive individuals. Since the active ingredients of household pesticides are often the same as those used in agriculture, a recent study published in the journal *Environmental Toxicology and Chemistry* addresses "Pyrethroid concentrations and persistence following indoor application" and explores whether laboratory studies are truly representative of what happens in a home.

Lia Nakagawa, lead author and a researcher at the Biological Institute in São Paulo, Brazil, and her colleagues pointed out a few distinct differences from earlier studies on these substances: When used outdoors, microorganisms, rain or sprinklers, and sunlight act to break down the pesticide's chemical compounds fairly quickly. Second, the chemicals in pyrethroid pesticides adhere to cloth, tiled floors and wood differently than they would to outdoor surfaces.

By running concurrent experiments—one in a controlled laboratory and the other in a test [house](#) - the authors found that the pesticides used in the controlled experiment broke down more quickly than those in the test house, with 70% of cypermethrin, a pyrethroid pesticide found in up to 90% of homes, still found in dust samples around the house after one year.

The authors conclude that the persistence of pesticides inside buildings, on surfaces and in the dust in houses can be viewed in a couple of different ways. On the one hand, when using pesticide products in the home, fewer applications should still maintain a long-term control of pests. On the other hand, extended persistence increases the likelihood that residents will be exposed to the pesticide, which can be especially worrying for young children and household pets, who spend more time on the floor and are frequently picking up things and putting them in their mouths. The findings highlight the importance of further studies to evaluate the actual risks of human exposure to pyrethroids when present in dust and on miscellaneous surfaces.

**More information:** Lia Emi Nakagawa et al, Pyrethroid concentrations and persistence following indoor application, *Environmental Toxicology and Chemistry* (2017). [DOI: 10.1002/etc.3860](https://doi.org/10.1002/etc.3860)

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