Want a healthier home? Start with your couch

March 24 2021

Credit: Pixabay/CC0 Public Domain

A new study shows that when people replace their old couch with a new one that has no added flame retardants, levels of the harmful chemicals in household dust drop significantly. Replacing the foam inside the

couch cushions is also just as effective. The findings confirm that choosing healthier furniture without flame retardants can make a big difference in people's—especially children's—everyday exposures to these toxic chemicals.

"We've long suspected that couches are a major source of toxic chemicals in dust. Now, for the first time, we have evidence demonstrating the positive impacts of replacing old furniture containing flame retardants," says lead author Kathryn Rodgers, a research scientist at Silent Spring Institute.

The findings appear in the journal *Environment International*.

Flame retardants can migrate out of furniture into air and dust, and end up in people's bodies. Exposure to the chemicals has been associated with cancer, thyroid disease, decreased fertility, lower IQ, and other harmful health effects. Infants and young children are particularly at risk since they crawl and play on the floor, where contaminated dust settles, and frequently put their hands in their mouths.

Until recently, the use of flame retardants in upholstered furniture across the United States and Canada was driven by a California flammability standard called TB117. Amid a public outcry over the toxicity of these chemicals and their lack of fire safety benefits, California updated TB117 to a new standard called TB117-2013. The new standard is designed to stop smoldering fires in the furniture's fabric before they reach the flammable foam inside, eliminating the need to add flame retardants to the foam. It went into effect in 2014 and allows manufacturers to make furniture without flame retardants.

A Healthy Exchange

To evaluate the impact of the new standard, Rodgers teamed up with

researchers at the University of California, Davis; Environmental Working Group; the California Department of Toxic Substances Control; and Green Science Policy Institute. The researchers recruited participants from 33 homes in Northern California who were willing to swap out their old furniture for flame retardant-free options. About two-thirds of the participants replaced their entire upholstered couch. The rest replaced their couch's foam.

The team collected dust samples from each home before the swap out, and then several times afterward over a period of 18 months. Concentrations of flame retardants dropped significantly after the first six months, and most remained lower a year after the furniture was replaced. The same drops were also seen in homes that replaced just the foam.

Of the seven types of flame retardants the researchers tested for in dust, two in particular—PBDEs and TPHP—decreased the most. The drop in PBDE levels was not unexpected due to their widespread use in furniture that met the old standard, says Rodgers. The researchers also observed decreases in a group of flame retardants called chlorinated OPFRs. However, the declines were not as sustained over time likely because the chemicals are used in other products including textiles, plastics, adhesives, and rubber.

Up to Standard

"For decades, our population has been needlessly exposed to harmful flame retardants from their furniture as a result of an outdated flammability standard that provided no fire safety benefit," says co-author Arlene Blum, executive director of Green Science Policy Institute. "This study confirms that the new standard reduces exposure to toxic flame retardants in our homes. This is a win-win for public health and also fire safety."

Beginning June 25, under a new federal bill recently signed into law, all upholstered furniture imported or sold in the United States will have to comply with California's TB117-2013 flammability standard for upholstered furniture.

"With the new national flammability standard, manufacturers are now assured they can continue to make furniture that is fire-safe without the need for toxic flame retardants," says Andy Counts, CEO of American Home Furnishing Alliance. "This is good for our business, and even more important, for the health of our workers and the public."

Despite recent successes at removing flame retardants from furniture, the global market for flame retardants continues to grow as the chemicals are increasingly used in other types of consumer products. "The findings from the new study should spur state and federal policymakers to reduce other harmful and ineffective uses of flame retardants in other items such as television cases and building insulation," says Blum.

What Can Consumers Do?

Because furniture can last a long time, many homes still have furniture that meets the old standard and contains flame retardants. "Replacing old furniture can be costly and may not be an option for everyone," says Rodgers. "The good news is our study shows that replacing your couch's foam can be just as effective." People can replace the foam in their couch by contacting a local foam supplier and asking for new foam that does not contain added flame retardants.

It's also important to keep dust levels low, says Rodgers, since the chemicals like to hang out in dust. She recommends vacuuming using a strong vacuum with a motorized brush and HEPA filter and wiping surfaces with a wet cloth or mop. Fixing rips in the furniture's fabric to

make sure the foam is not exposed and washing hands regularly are also important, she says.

For more tips on keeping harmful chemicals out of the home, download Silent Spring's Detox Me app.

More information: Kathryn M. Rodgers et al, Do flame retardant concentrations change in dust after older upholstered furniture is replaced?, *Environment International* (2021). DOI: 10.1016/j.envint.2021.106513

Provided by Silent Spring Institute