

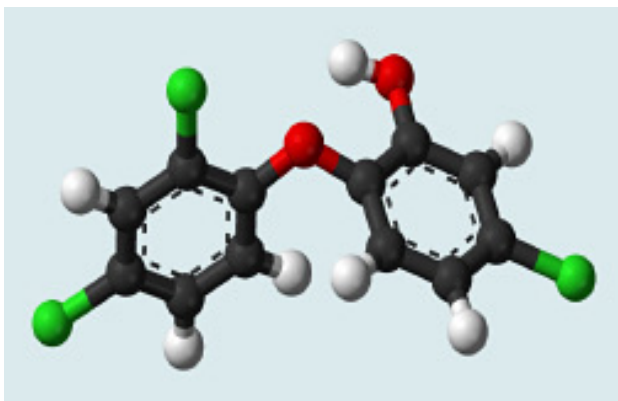
# Being too clean may lead to allergies, study suggests

Nov. 29, 2010  
Courtesy of the University of Michigan  
and World Science staff

Young people may suffer more allergies if they're overexposed to antibacterial soaps with a common ingredient, triclosan, a study indicates.

The chemical is widely used in products such as antibacterial soaps, toothpaste, pens, diaper bags and medical devices.

The scientists cautioned that their analysis didn't clearly determine cause-and-effect relationships. For example, some people might use more antibacterial soaps because they have more allergies, rather than the other way around.



A model of the structure of a molecule of triclosan. Gray balls represent atoms of carbon; white balls, atoms of hydrogen; green, chlorine; and red, oxygen. (Image courtesy USDA)

---

But the triclosan findings may “support the ‘hygiene hypothesis,’ which maintains [that] living in very clean and hygienic environments may impact our exposure to micro-organisms that are beneficial for development of the immune system,” said Allison Aiello of the University of Michigan School of Public Health, principal investigator in the study.

The research also found that excess exposure to Bisphenol A, a substance found in many plastics and as a protective lining in food cans, among adults may weaken the immune system. Both chemicals are in a class of toxicants called endocrine-disrupting compounds, thought to affect health by mimicking or acting on human hormones, said the researchers.

The investigators used data from 2003 to 2006 generated by a previous U.S. study known as the National Health and Nutrition Examination Survey. They compared urinary Bisphenol A and triclosan levels with diagnosis of allergies and with levels of antibodies to the pathogen cytomegalovirus—both considered signs of immune system changes.

People over age 18 with higher levels of Bisphenol A exposure had higher cytomegalovirus antibody levels, “which suggests their cell-mediated immune system may not be functioning properly,” said Erin Rees Clayton, research investigator at the school and a member of the investigative team.

Researchers also found that people age 18 and under with higher levels of triclosan were more likely to report diagnosis of allergies and hay fever. There's growing concern among the scientific community and consumer groups that these endocrine-disrupting compounds are dangerous at lower levels than previously thought, some scientists said.

As an antimicrobial agent found in many household products, triclosan may play a role in changing the micro-organisms to which we are exposed in such a way that our immune system development in childhood is affected, Aiello said.

"It is possible that a person can be too clean for their own good," he added, though it could also be that people "who have an allergy are more hygienic because of their condition." He noted that previous animal studies indicated the two chemicals under consideration may affect the immune system.

One surprise finding is that with Bisphenol A exposure, age seems to matter, said Rees Clayton. In people 18 or older, higher amounts of the compound were associated with higher cytomegalovirus levels, but in people younger than 18 the reverse was true.

The research appears online Nov. 30 in the journal *Environmental Health Perspectives*.