

School Pesticide Monitor

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Beyond Pesticides / National Coalition Against the Misuse of Pesticides
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Researchers Warn That Chemicals Impair Brain Development

Chemicals, including pesticides, may be causing a “silent pandemic” of brain diseases, researchers claim, impairing brain development, lowering IQs and costing billions of dollars in lost productivity, according to a new review. Fetal and childhood exposures to industrial chemicals in the environment can damage the developing brain and lead to neurodevelopmental disorders including autism, attention deficit disorder, and mental retardation.

The study, “Developmental neurotoxicity of industrial chemicals,” was published online in the journal *The Lancet* on November 8, 2006 (Vol. 368). The researchers examined publicly available data on chemical toxicity in order to identify the industrial chemicals most likely to damage the developing brain. The review finds that 202 industrial chemicals have the capacity to damage the human brain, and chemical pollution may have harmed the neurodevelopment of millions of children worldwide. Toxic chemical effects on children have generally been overlooked.

“The human brain is a precious and vulnerable organ...[E]ven limited dam-

age may have serious consequences,” says Philippe Grandjean, M.D., adjunct professor at Harvard School of Public Health and the study’s lead author.

To protect children against harmful chemicals, the researchers urge a precautionary approach for chemical testing and control. Such an approach is beginning to be applied in the European Union. The idea behind the precautionary principle is that, in most cases, by the time we have undeniable scientific proof of harm the damage will likely be too severe to correct. It puts in place strong regulations up front, which could later be relaxed. The precautionary approach is often thought of as a “common sense approach.” At present in the U.S., requirements for chemical toxicity testing are minimal.

“Even if substantial documentation on their toxicity is available, most chemicals are not regulated to protect the developing brain,” explains Dr. Grandjean. “Only a few substances, such as lead and mercury, are controlled with the purpose of protecting children. The 200 other chemicals that are known to be toxic to the human brain are not regulated to prevent adverse effects on

the fetus or a small child.”

A developing brain is much more susceptible to toxic chemicals than an adult brain. During development, the brain undergoes a highly complex series of processes. An interference from a toxic substance that disrupts those processes can have permanent consequences. That vulnerability lasts from fetal development through adolescence.

The authors conclude that industrial chemicals are responsible for a silent pandemic of impaired brain development in millions of children worldwide. They use the term “silent” because the subclinical effects of toxic chemicals are not apparent in available health statistics. Research has shown that chemicals at low levels of exposure can have subclinical effects—not clinically visible, but still important, such as decreases in intelligence or changes in behavior.

“The brains of our children are our most precious economic resource, and we haven’t recognized how vulnerable they are,” says Dr. Grandjean. “We must make protection of the young brain a paramount goal of public health protection. You have only one chance to develop a brain.”

Schoolyard Gardens Found To Be Valuable Educational Tools

Educators throughout the San Joaquin Valley, California are talking about the educational benefits of schoolyard gardens. Educators believe that schoolyard gardens offer lessons in ecology, nutrition, sustainable agriculture and many other subjects. Giving students the opportunity to dig, prune and pick are equally important, the teachers report, especially for those children growing up in urban neighborhoods. As a result, more and more schools are adding edible schoolyard gardens to their teaching curriculums.

Edible schoolyards are part of a growing teaching trend across the country that provides a “seed to table” teaching approach and an opportunity for lessons in ecology, nutrition, and cooking classes.

According to a 2002 survey from the California Department of Education and California State Polytechnic University, Pomona, roughly 3,000 schools in the state manage campus gardens, many without the use of pesticides. One teacher, Earle Fox, at El Dorado Elementary School, said that he wants his students

to learn how to grow things that they can eat without using pesticides.

Some of the produce grown by students is being served in schools’ salad bars. Mr. Fox said that in the future the program at his school will expand to other sustainable practices.

TAKE ACTION: *Incorporate an organic garden into your school’s curriculum! For more information on the nationwide trend of schools going organic, and steps to take to get your school to serve organic food, see the Jan/Feb 2006 edition of the School Pesticide Monitor.*

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Sign up today for the online **Organic Land Care Basic Training for Municipal Officials or Transitioning Landscapers, perfect for school groundskeepers**. Register at <http://www.beyondpesticides.org/pesticidefreelawns/training>.

Steps to Safe Head Lice Control

The safest and most effective way to treat head lice is not a chemical approach, but one that takes time and patience. Conventional products often contain toxic insecticides such as lindane, malathion, and permethrin, and should be avoided. Use these steps to treat and prevent lice infestations safely and effectively.

Prevention

- Institute a no-sharing policy for commonly infested items such as combs, brushes, hats, scarves, and pillows.
- For shared classrooms storage space, such as cubbies or coat hooks, make sure that students place their coats and hats in sealed plastic bags.
- Children with long hair should braid it before school and comb it out upon arriving home.
- Parents should inform the school the minute a child has lice so that preventive and control methods can be put in place.

Inspection

- Symptoms of head lice to look for: head scratching (often leading to scalp damage), red bites on the scalp, ears, and nape of the neck, and the presence of nits in the hair.
- Periodically check children for nits. Viable nits are yellowish to gray in color, darkening to a tan or coffee color as they mature, are shaped like a tear drop, and stick tightly to hair strands, unlike dandruff which will easily brush off.

Treatment

- It will always be necessary to nit comb, no matter what course of treatment you decide upon, but if you feel a need to do more than oil and comb, there are enzyme treatments for head lice. Enzyme treatments include Lice B Gone, (Safe Effective Alternatives, Inc., 877-730-2727, www.licebgone.com) and Lice R Gone® Shampoo (Safe Solutions, Inc., 888-443-8738, www.licergone.com).
- Mayonaisse and olive oil may work to help smother or slow down the lice. If you do not use a least toxic shampoo, apply one of these products to hair and leave on under a shower cap or plastic wrap for 30 minutes prior to nit-picking.

How to nit comb

- Cover hair in coconut or vegetable oil as lubricant and brush hair to remove tangles.
- Separate hair into one-inch sections and search thoroughly, both visually and using a nit comb under bright light. Be careful; because nits are tightly cemented to hair, the comb may pull some hair out.
- Immerse any nits or lice in hot soapy water using a least toxic herbal shampoo (such as Neemcare Riddance Herbal Shampoo or LiceBGone) as they are pulled from the hair.
- Pin cleaned sections of hair aside, curling it close to the head.
- Periodically clean hair and debris out of comb with a tissue.

- Once finished, wash the hair with hot soapy water and blow it dry. The heat from the blowdryer may help to kill any remaining nits or lice.



- Clean out the nit comb, removing hair and nits, and soak in 150°F water for 15 minutes before putting away.
- Repeat on every student or staff member showing symptoms of head lice for 12 consecutive days.
- Schools should monitor the staff and entire student body during and periodically after a school lice infestation, even if only one student shows signs.

Cleaning

- Thoroughly vacuum all carpets, upholstery, and common space to take care of any fallen nit-carrying hairs or runaway lice.
- Wash all towels, bedding, and items used during nit-picking sessions in hot water and dry on high.
- Place non-washable items in the drier on hot for 20 minutes or have them dry cleaned. Items can also be stored in a plastic bag for 14-30 days or frozen for 10 hours to remove potential nits and lice.