

# Pesticides, ADHD linked

Kids in heavily agricultural Salinas Valley are studied.

Los Angeles Times

**LOS ANGELES** — A growing body of evidence is suggesting that exposure to organophosphate pesticides is a prime cause of attention deficit hyperactivity disorder. The findings are considered plausible to many experts because the pesticides are designed to attack the nervous systems of insects. It is not surprising that they should also impinge on the nervous systems of humans who are exposed to them.

Forty organophosphate pesticides are registered in the United States, with at least 73 million pounds used each year in agricultural and residential settings.

ADHD is thought to affect 3% to 7% of American children, with boys affected more often than girls. Many experts believe its incidence has increased sharply in recent decades, but critics attribute the increased incidence to over-diagnosis. Some attribute the increase to the greater use of pesticides. The newest study, reported Thursday in the journal *Environmental Health Perspectives*, examines the effects of

both prenatal and childhood exposure to the pesticides, which are widely used in the United States to control insects on food crops.

Epidemiologist Brenda Eskenazi of the University of California at Berkeley and her colleagues have been studying more than 300 Mexican-American children living in the heavily agricultural Salinas Valley. Because they live in a farming community, the children are more likely than others to be exposed to the pesticides, but the problems resulting from environmental exposure are often first seen in those with the highest exposure.

After correcting the data to account for lead exposure and other confounders, they found that each tenfold increase in pesticide levels in the mothers' urine was associated with a fivefold increase in attention problems as measured by the assays. The effect was more pronounced in boys than in girls.

The study comes only three months after a Harvard study, looking at much lower levels of malathion in urine, found that a tenfold increase in pesticide levels was associated with a 55% increase in ADHD. The researchers believe that most of the children in the study were exposed to the malathion through food.