

Lead, smoke exposure in kids linked to ADHD

Eliminating contact could reduce cases a third, study finds

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Eliminating childhood exposure to lead and tobacco smoke could cut the incidence of ADHD in the U.S. by more than a third, according to new research from Cincinnati Children's Hospital Medical Center.

Individually, each substance increases a child's risk of developing attention deficit/hyperactivity disorder, but children exposed to both environmental toxins are more than eight times more likely to develop ADHD than children who weren't exposed to either substance, the study found.

"Tobacco and lead exposure together seem to have a synergistic, negative effect," said Tanya Froehlich, a physician in the division of developmental and behavioral pediatrics at Cincinnati Children's, and lead author of the study. Her research, which she will present today at the annual meeting of the Society for Developmental and Behavioral Pediatrics at the Hyatt Regency Cincinnati downtown, found ADHD could be reduced 35 percent by eliminating exposure to the toxins. That's more than 800,000 of the 2.4 million children ages 8 to 15 known to have the disorder, Froehlich said.

She and her colleagues found that children exposed prenatally to tobacco smoke were 2.4 times more likely to develop ADHD than children who weren't exposed. Childhood exposure to lead also increases the risk of ADHD, Froehlich said. Her research found children with the highest levels of lead exposure were 2.3 times more likely to develop ADHD.

Federal guidelines call for treatment if children have blood lead levels higher than 10 micrograms per deciliter, but the lead-exposed children Froehlich studied had blood lead levels well below that. The study is one of the first to quantify the risks of lead and tobacco smoke exposure and ADHD. Children exposed to both tobacco smoke and lead were 8.1 times more likely to develop ADHD than children who weren't exposed to either toxin, the study found.

"If children are exposed to both lead and prenatal tobacco, it's not like being exposed individually," Froehlich said. "It's considerably worse." The study is based on data gathered from 2,588 children ages 8 to 15 in the National Health and Nutrition Examination Survey from the National Center for Health Statistics at the Centers for Disease Control and Prevention. The survey is a nationally representative sample of the U.S. population, designed to collect information about Americans' health and diet.

Previous studies have shown that both lead and tobacco smoke interfere with the function of dopamine, a chemical that helps transmit nerve signals in the brain. Froehlich said her study highlights the need to ratchet up public health efforts to protect children from lead and secondhand smoke.

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