

Autism Linked to Vinyl Floors

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An article, appearing in the March 31, 2009 edition of *Scientific American*, reports on the findings of a recent study by Swedish and U.S. scientists that have established a 'baffling' link between autism and vinyl flooring. Experts have suspected for some time that [genetic](#) and environmental factors combine to [cause autism](#), a neurodevelopmental disorder that has increased dramatically in children over the past 20 years.

The study revealed that children who live in homes with *vinyl* floors, which can emit chemicals called phthalates, are more likely to have autism. The scientists were surprised by their finding, especially since their research was not initially designed to focus on autism.

In the study, families were asked questions about flooring, as part of research investigating allergies and indoor air pollutants. The lead investigator was Carl-Gustav Bornehag of Karlstad University in Sweden, who in 2004 found a high rate of asthma and allergies among children living in households with dust containing phthalates.

The study found that "A greater proportion of children with *autism spectrum disorder* were reported to have PVC as flooring material in the child's and the parent's bedroom in 2000, compared to children without autism spectrum disorder," and appeared in the journal, ***Neurotoxicology***.

Vinyl floors can emit chemicals called phthalates, which are widely used plastic softeners, and are also found in hairsprays, perfumes, cosmetics, shower curtains, wood finishers, and lubricants, among others. The researchers found that, not one but four environmental factors were associated with autism -- vinyl flooring, the mother's smoking, family economic problems and condensation on windows (indicating poor ventilation). The autistic children also were more likely to have asthma.

The study was based on surveys that asked a variety of questions related to the indoor environment. Of the study's 4,779 children between the ages of 6 and 8, 72 had autism, including 60 boys. Infants or toddlers who lived in bedrooms with vinyl or PVC floors were twice as likely to have autism five years later, in 2005, than those with wood or linoleum flooring.

The study of Swedish children is among the first to find an apparent connection

between an environmental chemical and autism.

Bernard Weiss, a professor of environmental medicine at University of Rochester and a co-author of the study, said the connection between vinyl flooring and autism "turned up virtually by accident." He called it "intriguing and baffling at the same time."

Several scientists who did not participate in the study cautioned that it has too many limitations to draw conclusions, but they suggested that new studies be designed to look for a connection between autism and indoor air pollutants.