

PVC as flooring material in childhood is related to asthma 10 years later

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Furthermore, there were indications that PVC flooring in the parents' bedrooms were stronger associated with the new cases of asthma when compared with child's bedroom. This could be an indication that prenatal exposure is of importance.

Soft polyvinyl chloride (PVC) is common flooring material in Swedish homes used in more than 30% of the bedrooms. Soft PVC includes phthalates that normally are released to the surrounding environment. Phthalates is a group of chemicals with suspected endocrine disrupting properties that may impact on several chronic diseases/disorders such as asthma and allergy. The current study was aimed to investigate if PVC-flooring in the home of children in the age of 1-5 years was associated with the development of asthma in 5-year and 10-year follow-up investigations (n=3,228).

What have we done?

The Dampness in Buildings and Health (DBH) study started in the year of 2000 with a questionnaire to the parents of more than 14,000 children (1-5 years of age) in Värmland, Sweden, with responses from almost 11,000 children corresponding to a response rate of 79%. In this baseline questionnaire we screened for health in the family, lifestyles, building

characteristics, etc. In 2005 we made a first 5 year follow up study and 2010 we made a second 10 year follow up, i.e., the data for the current study. The major interest in the follow up studies was to identify children that had developed asthma and other allergic diseases during the period after the baseline investigation.

What did we find?

Children who had PVC floorings in the bedroom at baseline were more likely to develop doctor diagnosed asthma during the following 10 years period when compared with children living without such flooring material. The risk was in several cases more than doubled. Furthermore, there were indications that PVC flooring in the parents' bedrooms were stronger associated with the new cases of doctor diagnosed asthma when compared with child's bedroom. This could be an indication that [prenatal exposure](#) is of importance.

What does it mean?

This is yet another study indicating health risks related to exposure for chemicals with suspected endocrine disrupting properties (such as phthalates) or products that contain such compounds. We have earlier shown that PVC flooring material is a source for phthalates found in indoor dust, that PVC materials in the home can be related to uptake of one phthalate (butylbenzyl phthalate, BBzP) in infants aged 2-6 months, and that the concentration of phthalates in dust can be related to human uptake of the same phthalates. Further, PVC flooring material as well as indoor dust concentration of phthalates and most recently, prenatal exposure for phthalates can be associated to eczema and asthma in children. This means that we can follow [phthalates](#) from one strong source (PVC), over to indoor dust concentrations, further to human uptake and finally there are findings showing that such exposure might

be of importance for asthma and eczema in [children](#). Our results together with others suggest that PVC flooring and phthalate exposure in early life is a risk for later development of [asthma](#).

More information: Huan Shu, Bo A. Jönsson, Malin Larsson, Eewa Nånberg and Carl-Gustaf Bornehag 2013. PVC-flooring at home and development of asthma among young children in Sweden, a 10-year follow-up. *Indoor Air*. Accepted manuscript online: 10 OCT 2013. [DOI: 10.1111/ina.12074](#)

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