

New floor covering can lead to breathing problems in babies

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New flooring in the living environment of pregnant women significantly increases the risk of infants to suffer from respiratory diseases in their first year of life. This is the result of a study carried out by the Helmholtz Centre for Environmental Research (UFZ) and the "St Georg" Municipal Hospital, which demonstrates that exposure to volatile organic compounds in the months before and after birth induces breathing problems in early childhood . The scientists therefore recommend that redecoration should be avoided during pregnancy or in the first year of children's life. According to an article written by the scientists in the scientific journal *Environment International* this could prevent at a rough estimate around 20,000 cases per year of wheezing requiring medical treatment in infants in Germany alone.

The observed health risks are caused by increased concentrations of [volatile organic compounds](#) (in short: VOCs), such as styrene or ethylbenzene, which escape from new flooring and are then absorbed through the respiratory air. "We therefore do not recommend that laminate, carpet or floor coverings be laid in the homes of [pregnant women](#). Although the concentrations of these [volatile chemicals](#) are lower if no adhesive is used when installing the flooring, even then the concentrations are still high enough to significantly increase the risk of infants suffering from respiratory complaints in their first few months", explains Dr. Ulrich Franck from the UFZ. Thereby, in particular those children whose mother or father have already suffered from asthma, hay fever or other allergic diseases are affected with an up to fivefold increased risk for airway diseases.

Earlier studies from Leipzig had already shown that chemicals from home renovations lead to changes in the immune system of new-born children. "For example, we could determine an enhanced type 2 immune response in the cord blood of children whose mothers were exposed during [pregnancy](#), which plays an important role in the development of allergic reactions.

The design of our long-term study with a comprehensive evaluation of environmental exposure before and after birth offers us a unique opportunity to study effects of this exposure on children's diseases. According to our results, exposure to these volatile chemical compounds seems to be more critical in pregnancy than in the first year of a child's life", concludes Dr. Irina Lehmann from the UFZ, who is in charge of the LINA study on lifestyle and environmental factors and their influence on the risk of allergies in newborn babies. An analysis of the data showed that renovations after the birth of a child had a much lower impact on [respiratory problems](#) than during pregnancy. Hence, the recommendation to wait to lay new flooring until well after the birth.

The investigations were carried out as part of the LINA study, which monitors mother-child pairs since pregnancy in order to investigate the effect of environmental influences and lifestyle habits on health and well-being of the child. The LINA study includes both regular questionnaires and pollutant measurements in their homes and environment as well as laboratory tests and medical examinations. The recently published study refers to data from a total of 465 mother-child-pairs living in Leipzig.

About two-thirds of the families carried out renovations during the pregnancy and every sixth of them additionally replaced the flooring.

More information: Ulrich Franck, Annegret Weller, Stefan W. Röder, Gunda Herberth, Kristin M. Junge, Tibor Kohajda, Martin von Bergen, Ulrike Rolle-Kampczyk, Ulrike Diez, Michael Borte, Irina Lehmann

(2014): "Prenatal VOC exposure and redecoration are related to wheezing in early infancy." *Environment International*, Volume 73, December 2014, Pages 393–401.

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