

Phthalates health risks

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DFG project provides data for a re-evaluation of these hormonally active substances

Phthalates, largely used as plasticisers, have long been suspected in connection with rising infertility rates, particularly among men.

These substances are quite common and are considered highly hazardous to human health because they disrupt the hormonal balance and impair reproduction and development. What has not been clear up to now is the amount of phthalates that enter the human body.

The Deutsche Forschungsgemeinschaft (DFG, German Research Foundation) is funding a research project at the University of Erlangen-Nürnberg under the leadership of Professor Jürgen Angerer that is studying the environmental uptake of phthalates in the population.

The results thus far have shown that these levels are far higher than previously believed, especially in children.

German and European authorities have already begun to react to the findings of the researchers from Erlangen.

Phthalates such as the plasticiser di(2-ethylhexyl)phthalate (DEHP) are among the most important industrial chemicals and are produced in great quantities. Of the 2 million tonnes of DEHP produced each year, 90 percent are used as plasticisers for PVC.

Phthalates are also used in many other areas, however, such as in the production of toiletry products and textiles, and are thus omnipresent in the environment. Human exposure to phthalates comes mainly from food and from the air. This is how they enter the organism, where they disrupt the hormonal balance.

Leading researchers and international expert committees draw a link between phthalate intake and the decline which has been observed for several decades in human sperm counts and thus male fertility. The rise in testicular cancer and male genital deformities has also been discussed in connection with phthalate exposure.

The researchers from Erlangen have demonstrated that humans are exposed to phthalates in far greater quantities than had been previously believed. In some cases the measurements even exceed the TDI (tolerable daily intake), the highest dose a person can take in on a daily basis over his or her entire lifespan without any harmful effects.

These findings have found great resonance not only in the scientific world but also among German and European authorities. The Scientific Committee on Toxicity, Ecotoxicity and Environment (SCTEE) of the European Commission has largely adopted the findings of the researchers from Erlangen.

This applies to the unexpectedly high burden on the general population due to DEHP as well as to the new discoveries on the metabolic behaviour of this phthalate.

The expanded test method used in the DFG project, which provides more precise and more reliable measurements, was also accepted without reservation at the European level.

The researchers from Erlangen have pointed out that infants and children, who are especially sensitive in their reactions to hormones, must be protected in the re-evaluation of the health risks associated with DEHP. This has prompted the German Federal Environmental Agency (Umweltbundesamt) to work together with the Institute of Occupational, Social and Environmental Medicine at the University

of Erlangen-Nürnberg on efforts to improve the data.

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