

High levels of phthalates can lead to greater risk for diabetes

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(Medical Xpress) -- There is a connection between phthalates found in cosmetics and plastics and the risk of developing diabetes among seniors. Even at a modest increase in circulating phthalate levels, the risk of diabetes is doubled. This conclusion is drawn by researchers at Uppsala University in a study published in the journal *Diabetes Care*.

"Although our results need to be confirmed in more studies, they do support the hypothesis that certain environmental chemicals can contribute to the development of [diabetes](#)," says Monica Lind, associate professor of environmental medicine at the Section for Occupational and Environmental Medicine, Uppsala University.

Together with Lars Lind, professor of medicine at Uppsala University, she has analysed new information from the so-called PIVUS study, which covers more than 1 000 70-year-old women and men in Uppsala.

In a physical examination participants were examined for fasting [blood](#) sugar and various insulin measures. They submitted blood samples for analysis of various environmental toxins, including several substances formed when the body breaks down so-called phthalates. Most people come into daily contact with phthalates as they are used as softening agents in plastics and as carriers of perfumes in cosmetics and self-care products.

As expected, diabetes was more common among participants who were overweight and had high blood lipids. But the researchers also found a connection between blood levels of some of the phthalates and increased prevalence of diabetes, even after adjusting for obesity, blood lipids, smoking, and exercise habits. Individuals with elevated [phthalate](#) levels had roughly twice the risk of developing diabetes compared with those with lower levels. They also found that certain phthalates were associated with disrupted insulin

production in the pancreas.

"However, to find out whether phthalates truly are risk factors for diabetes, further studies are needed that show similar associations. Today, besides the present study, there is only one small study of Mexican women. But experimental studies on animals and cells are also needed regarding what biological mechanisms might underlie these connections," says Monica Lind.

Mono-methyl phthalate (MMP), Mono-ethyl phthalate (MEP) and mono-isobutyl phthalate (MiBP) are all metabolites of the chemicals dimethylphthalate (DMP), Diethyl phthalate (DEP) and Di-isobutyl phthalate (DiBP), respectively, and are used in, among other things, [cosmetics](#), self-care products, solid air fresheners, and scented candles. DMP is also used in ink and as a softening agent in cellulose [plastics](#).

Provided by Uppsala University

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