

Butylparaben can have several endocrine disrupting effects

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Research suggests that butylparaben – which is used in cosmetics and skin care products such as sunscreen – have more endocrine disrupting effects than previously thought. In a study from the National Food Institute, Technical University of Denmark, researchers have observed endocrine disrupting effects on the development of the reproductive system in rats that are exposed to the compound prenatally. The researchers have found reduced sperm quality as well as changes in the prostate, testicles, ovaries and breast development.

Parabens are used as preservatives in e.g. cosmetics and [skin care products](#) such as sunscreen in order to stop bacterial growth. Parabens have been the subject of several scientific studies, because they have long been suspected of having endocrine disrupting effects. The results have led to a ban on the use of some parabens in foods and cosmetics in the EU, while a safety limit has been set for the addition of the compound in various products.

One of the permitted compounds is butylparaben, which previous studies have shown reduces sperm count in male rats that have been exposed to the substance prenatally.

Effects in both males and females

However, in a new study from the National Food Institute, other endocrine disrupting effects have also been found in both male and

female rats that have been exposed to butylparaben prenatally.

In addition to reduced [sperm quality](#), other observed effects in male rats included changes to the prostate as well as the testicles' ability to produce hormones. In [female rats](#) the effects included changes in breast tissue and ovary weight.

"Overall, our results suggest that butylparaben has more negative effects on reproductive health than previously thought," senior researcher Julie Boberg from the National Food Institute says.

Cocktail effects?

Some of the effects were only observed at high doses. However, sperm quality was affected at all studied doses. A very simple comparison shows that humans are exposed to parabens in doses well below what these rats have been exposed to.

In order to understand the importance of these findings for humans, it is not sufficient to simply look at what is applied to the body e.g. through skin lotions. It is also necessary to compare the doses humans have in their bodies with the doses test animals have in their bodies. In this area the researchers are lacking in scientific knowledge.

Therefore, it is important to gather more data on what children and adults are exposed to through skin lotions and cosmetics, and how it is metabolized in the body, Julie Boberg emphasizes.

"We need more knowledge about what it means for humans to be exposed to parabens from skin lotions and cosmetics for example. It is especially important to take account of cocktail effects because people are exposed to many types of endocrine disruptors at the same time over the course of a normal day," Julie Boberg explains.

Possible impact on regulation

The EU has just put forward criteria for when a compound is considered an [endocrine disruptor](#). As the study from the National Food Institute shows that butylparaben probably has an endocrine disrupting mode of action, this new knowledge about butylparaben may have an impact on how authorities in the future choose to regulate the use of the substance in different products.

More information: J. Boberg et al. Multiple Endocrine Disrupting Effects in Rats Perinatally Exposed to Butylparaben, *Toxicological Sciences* (2016). [DOI: 10.1093/toxsci/kfw079](https://doi.org/10.1093/toxsci/kfw079)

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