

# Nicotine from a pouch

**New nicotine products are entering the market. In addition to e-cigarettes, manufacturers are increasingly focusing on 'white' products, which contain nicotine alone, and no tobacco. A BfR study is examining the health risk of this new trend.**

Nicotine pouches or nicopods: suppliers also call them 'all white' products. Small pouches, like cushions, and filled with a white powder comprising nicotine salts, carriers, flavours and sweeteners. Whether mint, orange or hemp – there is a wide choice of flavours. The white pouches are supplied in tins, like sweets. They are placed firmly between the gums and lip for around 20 to 60 minutes to release nicotine which enters the bloodstream directly via the oral mucosa.

These 'all white' products are reminiscent of chewing or oral tobacco, such as traditional snuff or Scandinavian snus. They should not be confused, however, since they expressly contain no tobacco, but nicotine salts.

## Health effects

Since 2019, these novel products have also been spotted in Germany – despite the fact that their sale is so far prohibited in this market. In a study, the German Federal Institute for Risk Assessment (BfR) is investigating the health effects of consuming pouches. For the research team, it is initially important to know how much nicotine is absorbed through these products. "For this purpose, we randomly analysed various 'all white' products with different flavours and nicotine strengths," says scientist Nadine Dreiack. The weight, plus the nicotine content and pH value, were determined in the laboratory. "The latter are important because nicotine is a basic alkaloid and is absorbed more quickly through the oral mucosa at high pH values," explains her colleague Sebastian Malke. Scientist Nadja Mallock adds: "The study results show that the weight and nicotine content of the products vary greatly. The weight-related nicotine contents show a wide range of between 4.48 and 75.5 milligrams per gram pouch." Dr. Thomas Schulz, who assesses the health effects of nicotine products at the BfR, explains: "This may present a health risk, because even 16.7 milligrams of nicotine have an acute toxic effect when taken orally."

## Not just straight to the heart

Studies have shown that consuming just one 6-milligram pouch of nicotine increases the heart rate by ten beats per minute. The pharmacological effects of nicotine on



- Taken orally, nicotine quickly enters the blood via the oral mucosa.
- Even in this form of delivery, nicotine can be addictive.
- Children, young people, pregnant and breast-feeding women, people with cardiovascular diseases such as high blood pressure or coronary heart disease and non-smokers are generally advised not to consume nicotine. They should therefore avoid 'all white' products.

the body are known to include not only an increase in heart rate, but also an increase in blood pressure and negative effects on sperm quality. Schulz estimates that consuming nicotine orally from 'all white' products results in nicotine levels in the blood that are similar to smoking cigarettes or vaping with e-cigarettes. Nicotine accumulates in saliva, gastric juice and breast milk and easily passes the placental barrier. ■

**More information:**  
BfR Opinion No. 027/2021 of 20 September 2021  
[www.bfr.bund.de/en](http://www.bfr.bund.de/en) > A-Z index: Nicotine