

Body decoration

under the skin

... and from there even further? Studies carried out by the BfR show for the first time how tattoo ink ingredients are distributed in the body.

At any rate, it is sometimes more, sometimes less complex to find out what tattoo ink consists of through laboratory analyses. Some ingredients are already known to irritate the skin or trigger other undesirable reactions in the body. However, more information is needed to be able to fully assess tattoo inks' health risks: which ingredient ends up in the body and in what quantity? And what happens to it there? There has been no reliable data on this – until now. A team of scientists at the German Federal Institute for Risk Assessment (BfR) has now tracked where tattoo inks go in the body for the first time.

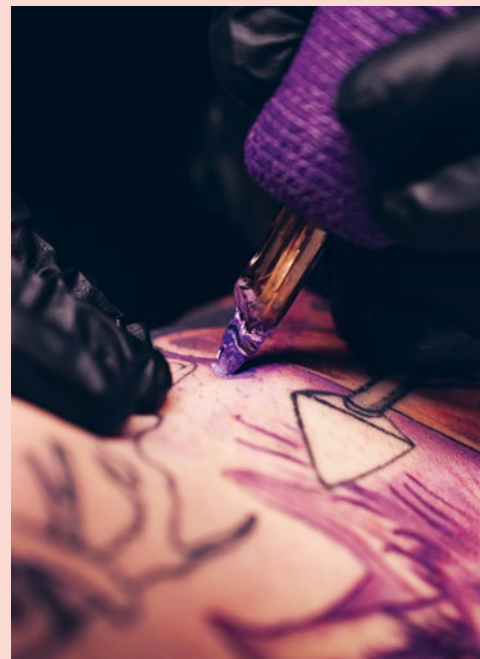
TATTOOING FOR SCIENCE

"For our study, we looked for a total of 24 volunteers who already had at least one tattoo and wanted another one," explains Dr Ines Schreiber, one of the heads of the BfR's Dermatotoxicology Study Centre. After a preliminary interview and examination, they were given

the tattoo of their choice by a professional tattoo artist under laboratory conditions on the premises of the Charité hospital in Berlin.

The study participants gave urine and blood samples shortly before the tattoo needle was applied and at certain intervals during and after the session. It was possible to trace exactly how the liquid components from the tattoo ink enter the blood and are processed by the body's own metabolism using "tracer substances".

"The actual colour pigments remain predominantly in the skin – unlike many of the other ingredients," explains Schreiber. Therefore, her team concentrated on the liquid components of the inks. And these were already detectable in the first blood sample taken shortly after tattooing began. How quickly the substances were metabolised in the body and excreted in the urine was different for each marker substance.



© cloutier-benjamin / Unsplash

One substance was no longer detectable in the urine after around four hours, while others took longer. The data will be used to develop computer models that can predict the time required for metabolisation of other substances in tattoo inks, among other things.

The study also recorded exactly how much colour was used in each case. To do this, the colour bottles were precisely weighed before and after the session. "And then we collected all the needles, cloths and gloves and looked at how much colour was stuck to them," explains Schreiber. The surprising thing: on average, around a fifth of the colour used actually ends up under the skin. The results of the study will make it possible to assess and evaluate the health risks of tattooing more accurately in future. For Ines Schreiber, the effort was definitely worth it: "Now we have the most realistic data that we could possibly have." —