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TATTOO INKS IN GENERAL USAGE CONTAIN NANOPARTICLES

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Aim: Tattoo inks are colorful products due to their content of pigments supposed to be particulate. Particle size of tattoo ink stock product was not measured systematically in the past.

Methods: In this study laser diffraction, electron microscopy and X-ray diffraction was carried out in order to study the size of the pigments dispersed in commercial tattoo inks available on the market. The dispersed pigments might have crucial effect on its surrounding and depending on the size of the pigments parameters such as; particle diffusion and reactivity play a crucial role in the physiology.

Results: From all investigated inks it was found that the pigments could be divided into three main classes. The black pigments were the smallest, the white pigments the largest and the colored pigments had a size in between the two. The vast majority of the tested tattoo inks contained significant amounts of nanoparticles except for the white pigments. The black pigments were almost pure Nano particles, i.e. particles with at least one dimension < 100 nm.

Conclusions: The findings of Nano particles in tattoo inks in general usage is new and may contribute to the understanding of tattoo ink kinetics. In general nanoparticles play an interesting role in the physiology. Due to its size there are not only risks but also possibilities, e.g. within drug delivery. Their sizes realize improved transportation thorough the body systems and due to their sizes there are increased surfaces, which imply more sites for reactions. For future aspects those findings need to be further explored in order to distinguish between healthy and non-healthy activities rising from Nano technologies.