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### The dangerous art of the tattoo

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Tattoos are fast becoming a mark of the 21st century, with one quarter or more of those under the age of 30 adorning their skin with at least one. Whether driven by the urge for personal expression or just plain youthful impulsiveness, most people get tattooed without a clue about the health implications of this invasive skin-puncturing procedure. I'd suggest that all tattooing require a signed consent form outlining risks -- the most obvious one being a major case of remorse.

Upwards of 50 percent of those who get tattoos later wish they hadn't. Their regrets become medical when they visit a dermatologist to have the tattoos removed, which is both painful and expensive. In the July issue of the Archives of Dermatology, researchers at Texas Tech University Health Sciences Center report on what's behind the change of heart: moving on from the past, problems wearing clothes, embarrassment, and concerns that tattoos could adversely affect job or career.

But tattooing is designed to last forever, delivering permanent ink deep under the epidermis. The skin reacts by protectively encapsulating the alien clumps of pigment in dense fibrous tissue while a few nearby lymph nodes collect what migrates out. For a long time, removal meant surgical excision or deep abrasion of the skin, invariably causing scarring and sometimes the need for skin grafting. In the preferred approach now, the tattoo gradually fades away under many months of laser treatments tailored to the wavelength of the pigments. Sounds easy. But with disruption, the fading tattoo becomes more like a toxic chemical dump.

Chemists from several laboratories, including the government's National Center for Toxicological Research, have identified low levels of carcinogens in tattoo ink. But the laser removal process, which demolishes the pigment by scorching it with heat, triggers chemical reactions that generate carcinogenic and mu-tation-inducing breakdown products, which are then absorbed by the body. Recently, German scientists reported that concentrations of toxic molecules from red and yellow pigments increased up to 70-fold after laser irradiation. And the bigger the tattoo, the greater the toxic release. This can only make one wonder whether it's better to let the sleeping paint lie, walled off by the body's own protective devices. Only time and a lot more study will tell.

We know so woefully little about tattoos. The Food and Drug Administration, which goes after cosmetics with a vengeance, does not regulate the tattoo industry. In fact, no one really knows exactly what's in the numerous commercial and homemade inks. But they do contain solvents and metals like lead and mercury and a range of impurities acceptable for computer printers or car paint--but not for human injection.

Allergic reactions and skin infections can occur after tattooing. And though they may be coincidental, skin cancers, including melanomas, have been reported within tattoo sites, bearing very close watching. The FDA warns about the risk of tattoo parlors transmitting viruses like HIV and the cancer-causing hepatitis C. Because of this, blood banks typically ban donations from people who have been tattooed in the previous 12 months. The FDA also warns patients that if they have an MRI scan, their tattoos can swell or burn, presumably related to the metal in some inks.

Stigma. Once mainly a guy thing, tattoos now decorate men and women equally, and increasingly they are a women's health issue. It should be obvious that getting or removing tattoos during pregnancy is not a good idea. And some anesthesiologists have expressed concerns about performing epidurals, used during labor, through those symmetrically designed female lower-back tattoos because of the slim possibility that the needle might carry pigment into the spinal canal. Perhaps not surprisingly, most patients seeking removal are women, prompted by a disproportionate level of psychological distress and even tattoo stigma. Witness the tasteless moniker used to describe those lower-back tattoos: "tramp stamp."

I asked a few of my U.S. Newscolleagues about their take on women and tattoos. One said there was something trendy if not sexy about them--but maybe not for his fiancée. Another said he'd date a girl with one if it were not too obvious. A third saw only harmless self-expression. I'm with one young reporter who visited a tattoo parlor for a piece she was writing. She's down on tattoos because of the murky risks -- and the idea of looking at the deeds of her youth for 80 years.

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