Tattooed Skin and Health
Current Problems in Dermatology

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Tattooed Skin and Health

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Preface

With some 100 million Europeans being tattooed, i.e. 10–20% of the adult population, it is timely to highlight tattooed skin and health.

Tattoos have been part of human history for thousands of years and have flourished due to people’s emotions, aspirations and wishes to permanently express themselves as individuals. Today, as in the past, people hold the ownership of tattoos. Tattoos have a sunny side and a rebellious drive as well as a shadow. In modern society, tattoos are mainly decorative, used by both genders and span a broad range of social segments, age groups and ethnicities. The tattoo culture is global and serviced by a huge industry that operates across national borders and continents.

Unlike in the past, when soot and soil minerals were used for tattooing, tattoo colorants are now based on modern-pigment chemistry, which has allowed elaborate artwork on the skin. These pigments, however, entail a complex chemistry that is injected into the skin when getting a tattoo. Pigment particles are also sized in the nano-range. Modern scientific technologies that should be used to provide safer tattoo colorants and minimise the risk of the possible health concerns that come along with tattooing are now available. Tattooing can be considered the largest on-going human experiment on the injection of particles and chemicals into the human skin. However, this experiment has not been protocolled, has been off record, and has had no systematic surveillance. In contrast to the injection of medications based on one highly pure drug chemical, which passes astronomical regulatory requirements before being launched, the lack of regulation of tattooing is not logical.

The adverse events that we see in the clinic and know about have cast a shadow on tattooing and include allergic reactions from red tattoos, papulo-nodular reactions from black tattoos, scars and technical complications, psycho-social complications, and bacterial and viral infections, particularly those that may be life-threatening, such as acute blood infection and death, followed by slow-progressing viral infections and possible organ failure with a fatal outcome. The growing concern about multi-resistant bacteria, especially methicillin-resistant *Staphylococcus aureus*, as expressed in a warning by the World Health Organisation, is the number one future risk of tattooing. Therefore, the control of hygiene and sterility of inks is an urgent need. We don’t see skin malignancies or malignancy of regional lymph nodes, which can be tattooed in cognito along with the skin. The potential carcinogenic risk of ink ingredients, such as polycyclic aromatic hydrocarbons, remains unconfirmed in the clinic, despite tattooed individuals being exposed to such a potential risk for a century. However, the research is scattered, and the potential risks to the body, internal organs and foetus are not excluded. The manufacturing of tattoo inks and chemical ingredients in inks cannot remain being not safeguarded.
Professional tattooists and recognised producers of tattoo inks are motivated and wish to contribute to the improvement of the safety of tattooing; however, amateurs, called ‘scratchers’, and producers of discount inks are significant players in the price-sensitive marketplace who are ready to occupy a larger volume if serious players are weakened under the weight of regulation. Regulation of the tattoo business is a very special challenge, and manufacturers face difficulties in their access to raw material pigments that are documented as safe. The 29 leading international pigment suppliers, under the Ecological and Toxicological Association of Dyes and Organic Pigments Manufacturers, will not run any corporate risk and will not sell their pigments for tattoo ink manufacturing. Therefore, the need for realism is obvious, and wisdom beyond technical insight and bureaucratic reference is necessary for the fulfilment of the ultimate goal, improvement of tattoo safety in real life.

The Council of Europe, with resolutions ResAp(2003)2 and ResAp(2008)1, initiated a development towards safer tattooing. In a very recent work documenting the safety assessment of tattoo inks, the Council experts have pointed out that dedicated animal experiments are necessary to assess tattoo inks. In 2014, the European Union committed the Directorate-General for Health and Consumers to prepare common European requirements for tattoo ink products to protect consumers. This was paralleled by the development of hygiene standards by the Comité Européen de Normalisation, with Deutsches Institut für Normung as the project leader. These important initiatives will mark a new era.

Improvement of the safety of tattooing is hampered by the massive deficit of academic insight into tattooing. The current research is truly premature and is covered by only a few hundred scientific publications in the world literature. Tattooing is a modality of its own; it is the multiple injection of ink particles across the skin barrier. Knowledge from other fields, such as cosmetics, laboratory research and traditional toxicology, cannot be uncritically applied to tattooing without proper validation.

The European Society of Tattoo and Pigment Research (ESTP) was founded on 13 November 2013 at the first European Congress on Tattoo and Pigment Research, ECTP2013, at Bispebjerg University Hospital, Copenhagen, Denmark. The ESTP shall contribute to future research in the field. This book, which was edited by ESTP and inspired by the book ‘Dermatologic Complications with Body Art’, by ESTP board member, Dr. Christa de Cuyper in 2010, shall contribute to the future development of safe tattooing. This book is written for a broad range of people who are involved in tattooing, including clinicians who treat adverse events associated with tattooing.

This publication was only possible due to the generous contributions of the faculty of esteemed authors, each a specialist in their particular field. Karger Publishers did a marvellous job. This book was completed in only 10 months, from first inviting the authors to the final print and launch. Thank you!

European Society of Tattoo and Pigment Research (ESTP), April 2015

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