Experimental skin deposition of chromium on the hands following handling of samples of leather and metal

Background: Chromium is an important skin sensitizer. Exposure to it has been regulated in cement, and recently in leather. Studies on the deposition of chromium ions on the skin as a result of handling different chromium-containing materials are sparse, but could improve the risk assessment of contact sensitization and allergic contact dermatitis caused by chromium. Objectives: To determine whether the handling of chromium-containing samples of leather and metal results in the deposition of chromium onto the skin. Methods: Five healthy volunteers participated. For 30 min, they handled samples of leather and metal known to contain and release chromium. Skin deposition of chromium was assessed with the acid wipe sampling technique. Results: Acid wipe sampling of the participants' fingers showed chromium deposition on the skin in all participants who had been exposed to leather (range 0.01–0.20 µg/cm²) and in 3 of 5 participants after they had manually handled metal discs (range 0.02–0.04 µg/cm²). Conclusions: We found that samples of leather and metal had the ability to deposit chromium on the skin at significant levels, in spite of a short duration of exposure.