

Is there a flip-side to nickel use in coins?

doi:10.1111/cod.12012

The presence of nickel in coins has generally been a truism. Nickel industry representatives, and others, have often claimed that the use of nickel in coins is important and beneficial, and that nickel works as a measure against coin fraud. It has also been claimed, but not proven, that the duration of skin contact (skin exposure) with coins is too short for nickel ion release and deposition on the fingers and hands. Hence, coin exposure as a causal mechanism for nickel allergic contact dermatitis has often been rejected. Other unproven statements in favour of nickel in coins include that nickel has been used in coins for decades without causing an epidemic of hand eczema. In this edition of *Contact Dermatitis*, two articles are dedicated to nickel in coins and the allergy risk (1,2). Together, they show that nickel is frequently used in coins, and that it is indeed problematic. Such information is crucial for the purposes of treatment of hand eczema and worker's compensation.

First, a thorough review of studies on the composition of coins, nickel release, deposition on skin by coin handling, case reports and epidemiological studies is presented. It is shown that many nickel-containing coins release very large amounts of nickel, which is deposited on the skin following short and repeated contact, as observed in coin handling by cashiers. The conclusion is that nickel-containing coins can, indeed, pose a risk for those who handle them.

Second, a survey of nickel release by the use of dimethylglyoxime testing of circulating coins from more than 50 countries, used by 75% of the world's population, is presented. The proportion of nickel-releasing denominations varies widely between countries. It is shown that there are countries with no or few nickel-releasing denominations. Seven nickel-free coin materials (alloys and platings) are present in 129 of 361 denominations. This clearly proves that nickel-free coins are certainly available, and that nickel is not required in coins.

Technical, economic and political considerations are taken into account before a decision to change the composition of coins is taken. Countries may change their coins continuously or in a stepwise manner, and even large changes can occur as a result of monetary reforms, as observed in the United Kingdom in 1971, in Brazil in 1994, and when the euro

coinage was introduced in selected member states in 2002. It is thus possible to change the composition of coinage.

Nickel allergy is a global, public health problem, affecting up to 17% of women globally, or 9% of the general adult population (3). A significant proportion of nickel-allergic individuals suffer from hand eczema. The EU nickel regulation (former Nickel Directive, now part of REACH) was an important first step to prevent nickel allergy and its consequences, but further action is needed to reduce skin exposure to nickel and dermatitis (4). We suggest that a scientifically based health risk assessment considering nickel allergy should form part of the procedure when new coinage is planned.

Before the euro coins were introduced, risk assessments considering nickel allergy were performed, resulting in the decision to have six nickel-free out of eight coins in the first generation of euro coins. When Sweden decided on the composition of new coins, risk assessment was taken seriously, and all Swedish denominations will, from 2015, be nickel-free (Report from the Banknote and Coin Project. Ref. 2008-286-ADM. March 2011. pp. 16–20. <http://www.riksbank.se/>). We are not aware of any other health risk assessment having been carried out before decisions on coin materials are made, and certainly not by the Royal Mint, which recently introduced two new nickel-plated coins in the United Kingdom (5).

Although a small proportion of our populations handle coins professionally and are therefore at direct and intensive risk of nickel contact dermatitis on the hands, it should be underscored that nickel exposure from coins could be 'the straw that breaks the camel's back' in many nickel-allergic individuals with hand eczema. Hence, intermittent exposure to nickel-releasing items such as coins and keys, professionally and privately, may result in the accumulation of nickel on the skin, and ultimately worsen and maintain hand eczema. One may therefore suggest that it is time to rethink the use of nickel in coins. Central banks are aware that the cost of coins is high, being higher than the face value of the coins. It seems that the cost is also very high for those nickel-allergic individuals who develop hand eczema from coin handling.

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References

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