

FAQ - To learn more about NACD

What is nickel allergic contact dermatitis (NACD)?

Nickel allergic contact dermatitis is an immune reaction (type 4 delayed reaction) to solubilized nickel ions that have entered the skin. Individuals with nickel skin sensitisation experience a skin reaction, usually inflammation and itching, when they come in direct and prolonged contact with items releasing a sufficient amount of solubilized nickel.

How does nickel allergic contact dermatitis (NACD) start?

Individuals can become sensitised to nickel through direct and prolonged contact to items such as some types of jewelry, piercings or nickel-coated clothes fastenings (like buckles, zippers and clasps), if these release an amount of solubilised nickel sufficient to cause nickel sensitisation. Once an individual has become nickel-sensitised, direct and prolonged exposure to items releasing significant nickel (but can be less than the amount that caused the initial sensitisation reaction) can cause a skin allergic reaction known as nickel allergic contact dermatitis.

What types of exposures cause nickel sensitisation?

A common cause of nickel sensitisation is piercings (both earrings and body piercings) if the material used in the piercings release sufficient amounts of nickel. Other causes of nickel sensitisation are direct and prolonged contact with other types of jewelry and clothing fasteners which release a sufficient amount of solubilized nickel to cause a nickel sensitization.

How many people are affected by nickel sensitisation and nickel allergic contact dermatitis (NACD)?

Research shows that on average 12-15% of women and 1-2% of men are nickel sensitised.

Why are more women affected than men?

Research is not conclusive at this point but it is thought that this may be due to the fact that women wear more jewelry and have more piercings than men. A smaller portion of these are affected by NACD, depending on their level of sensitivity and exposures to nickel-releasing items.

Are there common causes of allergic contact dermatitis other than nickel?

Yes, poison ivy, perfume, solvents and antibacterial ointment are just some of the other common causes of allergic contact dermatitis.

How do I know if I have nickel allergic contact dermatitis?

The symptoms of an allergic reaction to nickel can include skin dryness, chapping, eczema, blisters and inflammation at the site of the exposure to items releasing a sufficient amount of solubilized nickel. To be sure that the symptoms are caused by an allergy and to determine the cause of the allergy, a dermatologist should be consulted. A review of exposures and clinical history should be conducted, possibly accompanied by a skin allergy test to confirm whether the allergen is nickel if the exposures and reactions are consistent with nickel allergic contact dermatitis.

How can nickel allergic contact dermatitis (NACD) be prevented?

The most effective approach to prevent NACD is for nickel-sensitized individuals to avoid direct and prolonged contact with high nickel-releasing items, particularly jewelry and clothing fasteners made of high nickel-releasing materials. Selecting items labeled as surgical stainless steel, as a low nickel-releasing material considered to be safe for direct and prolonged contact applications, can prevent NACD.

Can handling coins cause nickel sensitisation?

Handling coins is not thought to cause nickel sensitisation. Research has shown that nickel-sensitized individuals handling nickel-containing coins for eight hours per day for 10 days did not experience an allergic reaction. Also, a 1999 risk assessment from the Danish government's Environmental Protection Agency shows that there is no significant risk from handling coins for the general public. Billions of people have been handling billions of nickel-containing coins for over a century without a significant number of adverse effects.

Can handling coins cause a nickel allergic contact dermatitis (NACD) reaction?

Even in sensitized individuals, transient and brief contact with nickel-containing items like coins, keys, handles, tools etc. is not likely to cause an allergic reaction. Specifically for coins, there are no reports of a significant number of adverse effects in Canada or the United States where many nickel-releasing coins are used. Interestingly, in Canada where the 5, 10 and 25 cents coins have been made of pure nickel for many decades, there are no reports of a

significant number of adverse effects. In the US, where the 25 cent coin (also known as a quarter) is low nickel-releasing with normal use as brief contact (but can release high amounts of nickel with prolonged contact), there is no evidence of significant adverse dermatological effects.

Can nickel-containing foods cause nickel allergic contact dermatitis (NACD)?

Some foods naturally contain nickel, including nuts, chocolate and beans. Eating these foods does not cause an allergic contact dermatitis reaction except in a very small portion of the population that is extremely nickel-sensitive (i.e. who react to very low levels of nickel). Oral exposure to nickel-containing items is not thought to cause nickel-sensitisation in non-nickel sensitised individuals.

How is the public protected from nickel in jewelry and clothes fasteners?

In the European Union, there is legislation that limits the nickel release rate from nickel objects if they are intended to be in direct and prolonged contact with the skin, e.g. in earrings, piercings, other jewelry or clothes fasteners. If the EU's nickel release legislation were properly enforced, dermatologists believe nickel allergic contact dermatitis and eventually nickel sensitisation (the number of already nickel-sensitised individuals) would fall to very low levels. There is already evidence of lower prevalence of nickel sensitisation in younger populations.

What is the relative amount of nickel release associated with a threshold?

The average threshold for nickel NACD is correlated with a nickel release rate from an article of $0,5 \mu\text{g}/\text{cm}^2/\text{week}$. This was derived by comparing nickel release rates of different materials with patch test reactions of nickel-sensitised individuals to those same materials.

How is nickel release data associated with exposure?

The European Union standardized nickel release test (EN1811) measures how much of the nickel, once corroded, can be available to the skin to be absorbed and cause a nickel allergic dermatitis reaction. This would be the potential amount of dermal exposure. Nickel within the article must first be corroded, which requires direct and prolonged contact with a medium such as sweat. The corrosion product must then be dissolved into nickel ions that can be absorbed through the skin to cause a nickel allergic reaction, since nickel particles do not pass through the skin or cause a reaction on their own.

It is therefore the nickel release, not the content of nickel in the material that is important. Some nickel-containing materials release very little nickel, if any, such as some stainless steels that are very corrosion resistant (e.g., surgical stainless steel). This is why these stainless steels are used for many applications.

Can nickel allergy cause anaphylactic shock?

No. Nickel allergy cannot cause anaphylaxis. This is because it is a Type 4 "delayed reaction allergy". Unlike some other allergens (Type 1,2 and 3) nickel allergy is not life-threatening and cannot trigger anaphylactic shock.

Is nickel allergy hereditary?

No. Nickel sensitization is not an inherited condition. It is related to intimate and prolonged skin contact (exposure) with materials releasing high amounts of nickel.

What conditions must occur to trigger NACD?

To trigger NACD three simultaneous conditions must occur. 1. Direct skin contact with the nickel-releasing item, 2. Prolonged skin contact with the nickel-releasing item, 3. A sufficient amount of nickel must be released and absorbed into the skin to cause a NACD reaction.

Source: www.nickelinstitute.org