

Latex allergy

**It is a known fact that people who have frequent contact with rubber products, such as latex, run the risk of developing a hypersensitivity. This hypersensitivity can manifest itself in various ways: skin irritation (irritant contact dermatitis), a contact allergy in the skin (type IV allergy) of an allergic reaction in the mucus membranes of the nose, eyes or lungs (type I allergy).**

#### **Irritant contact dermatitis**

Irritant contact dermatitis (ICD) occurs most frequently among people who wear either synthetic or natural rubber gloves (about 30%). It is not a reaction of the immune system and is limited to the skin that has come into direct contact with the material. After a period of 48 to 72 hours, the following symptoms develop:

- dry, crusty swellings
- horizontal cracks in the skin

Causes of ICD include frequent washing of the hands with irritant soaps, the use of hand disinfectants (alcohol) combined with the hands being enclosed due to wearing gloves (occlusion).

It is striking that in 60% of cases in which a person thinks he has developed latex allergy, it is actually a case of irritant contact dermatitis. Frequently washing the gloves and using water-based hand cream low in allergens (ROC, Vichy) can solve the problem.

#### **Type IV allergy**

The type IV allergy is a relatively mild contact allergy that occurs in fewer than 5% of people who wear gloves. It appears after a prolonged exposure primarily to chemical additives in the rubber. Just like ICD, a type IV contact allergy can be caused by either synthetic or natural rubber gloves. With type IV contact allergy, the following symptoms appear within a few hours or days after wearing the gloves:

- skin eczema, consisting of redness, itching, and sometimes bumps and blisters
- itchy bumps or swelling of the eyelids, lips or hands.

The diagnosis can be confirmed by a specialist, using test patches.

#### **Type I allergy**

Antibodies are at the centre of the serious type I allergy. Those are proteins that the body produces and that are aimed against certain naturally occurring substances, in this case against the proteins in the latex fluid. Type I has a low rate of incidence in the population, about 1%, but antibodies against latex have been found in the blood of 1 out of 6 health workers. When latex particles are inhaled (powdered gloves) or when contact is made with the mucus membrane, sometimes the following symptoms appear within a few minutes:

- sneezing, runny nose, itching in the nose, tears, itchy and/or red eyes
- shortness of breath, coughing and/or wheezing
- itchy bumps on the hand within 30 minutes after touching the gloves
- itchy bumps on the rest of the body immediately after wearing gloves
- swelling of the hands, eyelids, lips or tongue.

Type I allergy is a genuine latex allergy. A doctor can determine a diagnosis using a skin prick test and/or blood test.

### **Allergy tests**

To reach a diagnosis, the dermatologist needs to conduct an allergy test: that can be in the form of either a so-called patch test (type IV test) or a skin prick test. With a patch test, adhesive patches with the allergenic substance are applied to the test subject's body. 48 hours later the area is checked to see if any allergic reactions are visible. With the skin prick test a drop of allergen is applied to the test subject's skin. By piercing through the drop the allergen is brought into contact with the person's blood. It is also possible to identify antibodies in the test subject's blood (RAST test). When someone has antibodies in his body, the risk for an allergic action is high.

### **Cross-reactive allergy**

The phenomenon of cross-reactive allergies and/or concomitant allergies has long been known: antibodies aimed at inhalant allergens also react to foods. In the case of latex allergy, as well, about 50% of patients have various cross-reactions with foods. It is chiefly the following products that are concerned:

- Fruits, such as banana, papaya, pineapple, avocado, melon, passion fruit, kiwi and fig
- Nuts, such as chestnut, walnut
- Legumes
- Vegetables, such as tomato and potato

### **The roll of powder**

It was first described in The Lancet in 1990 how latex proteins bind themselves to corn starch powder. Workers in operating rooms, for instances, can be exposed to airborne latex allergens in this in this way. It is now known that latex proteins bind ionically to the corn starch powder. The powder, with a particle size of 1–3 micrometers, can be easily inhaled, leading to the induction of latex sensitivity and, in a later phase, symptoms of latex allergy. In spaces where people use powdered gloves, the concentration of (airborne) latex allergens has been measured to be 100 to 200 times higher than in spaces where unpowdered gloves are utilised. Furthermore, the powder gets into the lab coats and ends up on the table. The high concentrations of airborne latex allergens in 'powdered' spaces are comparable with concentrations of airborne rat/mouse allergen, which is known to lead laboratory animal personnel to develop sensitivity and occupational asthma. In many cases this has led health facilities to avoid powdered gloves.

### **Recommendations and skin problems**

The following overview of a few measures that can be taken is based on various studies and publications on this topic:

- limit mechanical strain on the skin as much as possible
- use a neutral soap that is gentle on the skin
- dry your hands thoroughly before you put gloves on
- after using alcohol to disinfect the skin, let it completely evaporate. Enclosed in the glove, the slightest bit of remaining alcohol can irritate the skin and produce a burning sensation
- care for your skin regularly using a cream made especially for this purpose.

### **Sources consulted:**

*Dr. H. de Groot, Allergy Department, AZR; Het Rotterdamse Latex Protocol*

*Nederlands Kenniscentrum Arbeidsdermatosen – NECOD*

*Werkgroep Medische Middelen, AZG; Handschoenen*

### **More information:**

- <http://www.huidarts.info/documents/?v=2&id=60>
- <http://www.beroepsziekten.nl/node/318>