

Latex allergy management for healthcare professionals

Understanding natural rubber latex, chemical allergies and powder related problems associated with glove barriers



Overview

Gloves containing natural rubber latex (NRL) provide excellent protection against the transmission of infectious agents and are an integral part of healthcare practice. However, NRL gloves have been associated with skin irritation in some users. Adverse skin reactions to NRL gloves include delayed contact dermatitis (type IV reaction), latex allergy (type I reaction) and general skin irritations.

The introduction of universal glove precautions ('standard precautions') has increased the exposure of healthcare workers and patients to NRL gloves, leading to an apparent rise in the number of people experiencing adverse reactions. However, the advent of improved technologies, powder-free gloves and superior modern manufacturing processes has since reduced the incidence of latex reaction.¹

For the majority of healthcare professionals and patients, the risk of latex allergy is low.¹

Adverse reactions to NRL gloves can range from general skin irritations to a serious allergic response. Allergic reactions may be a response to the NRL from which the glove is made or to other chemicals used in the manufacture process.²

NRL is a type of rubber derived from the milky sap of the *Hevea brasiliensis* tree. It is used to manufacture surgical gloves and many other healthcare and consumer products. Most people are regularly exposed to NRL as it is found in thousands of everyday items.

The majority of surgical gloves are still made from NRL because it is difficult to match the benefits of elasticity, comfort, strength, barrier performance, alcohol resistance and economy that NRL can offer.¹

NRL is also a natural, biodegradable product, containing no petroleum by-products or dioxins.¹

As not all adverse reactions to gloves are latex allergies, it is important to consider other sources of irritation. Other adverse reactions include delayed contact dermatitis, irritant contact dermatitis and responses to glove powder and other substances used in glove manufacture. In addition, the use of soaps, hand scrubs and abrasive hand towels may actually be the cause of an adverse reaction.

Correct recognition and management are the keys to successfully managing NRL allergies and other skin irritations. The information provided in this guide is designed to help healthcare professionals identify and manage potential risks associated with NRL glove use. Healthcare professionals should consult their individual institution and qualified physicians for specific recommendations, policies, diagnosis and treatment related to NRL and chemical allergies.

Adverse skin reactions associated with glove use

Immediate type I response: latex allergy

A type I response is a reaction to residual proteins found in latex. The reaction is immediate, typically occurring 5 to 30 minutes after initial contact.

The symptoms are commonly:

- swelling and redness, local to the site of exposure
- non-specific symptoms such as itching and burning.

The symptoms can spread to areas remote to the site of contact with the glove, and can be accompanied by:

- conjunctivitis
- rhinitis
- bronchial obstruction.

In rare cases, symptoms of anaphylaxis can occur.

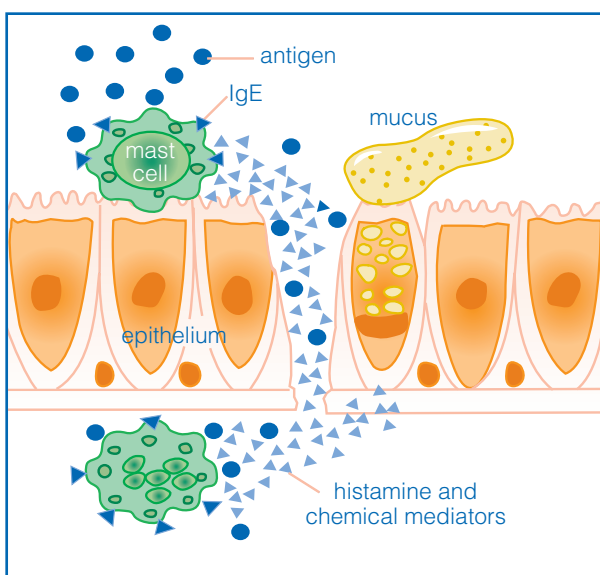


Figure 1: The Type I allergic response (early phase)

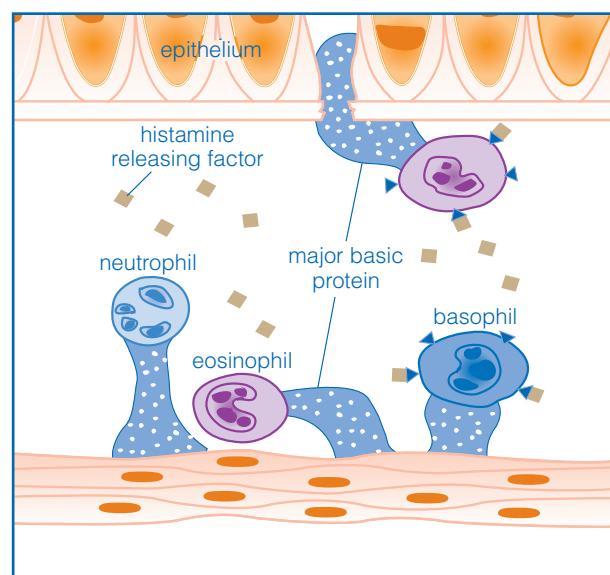


Figure 2: The Type I allergic response (late phase)

Delayed type IV response: delayed contact dermatitis

A type IV allergy is a reaction to specific allergens such as chemical residues from the glove manufacture process. The response is delayed rather than immediate, usually occurring 6 to 48 hours after initial contact, although symptoms can last for up to 4 days.

The symptoms include some or all of:

- erythema (redness)
- swelling
- cracking
- itching
- weeping
- dryness of the skin at the site, although dermatitis may extend beyond the area of contact.

Irritant contact dermatitis

Irritant contact dermatitis is a non-allergic reaction affecting a number of surgical and examination glove users.

It may be a local reaction to:

- detergents
- frequent hand-washing
- inadequate drying
- climate extremes
- pre-existing dermatitis
- aggressive scrubbing techniques
- glove powder.

The typical time of onset is within minutes to hours of glove contact. Symptoms are limited to the site of glove exposure and include:

- redness
- chapping
- chafing
- dryness
- scaling and cracking.

Irritant contact dermatitis is a condition affecting the skin, and should not be confused with an allergy.

Complications associated with glove powder

Glove powders are modified cornstarches used to assist in donning the glove. Although some people may experience irritations associated with glove powder, these are not allergic reactions. Glove powder is, however, a possible carrier of latex proteins and chemical accelerators used in the manufacturing process.

Skin irritations associated with glove powder are mainly related to its potentially abrasive effects.

In addition to complications such as irritant contact dermatitis, glove powder can also contribute to post surgical irritations such as granulomas or localised wound irritation.

Other causes of sensitivity

Some people may also be sensitive to other substances associated with surgical and examination glove use. Other causes of sensitivity besides latex and chemical accelerators include some or all of:

- lanolin, which is used as a glove softener by some other manufacturers (not used in Ansell products)
- polyoxypropyleneglycol, a coagulant used in the glove manufacture process (not used in Ansell products)
- colouring pigments, either organic or inorganic
- quaternary ammonium compounds
- antioxidants which are used to prevent the degradation of NRL products
- preservatives.

Recommendations for managing adverse skin reactions to gloves

It is important for all healthcare professionals to assess their own level of NRL sensitivity.

Healthcare workers should take notice of any reactions to substances such as food, chemicals, vapours, clothing or other frequently used items.

Signs of sensitivity may include some or all of:

- redness and swelling of the involved area
- itching
- rash
- weal
- excessive tearing
- sneezing, itching and watery discharge from the nose
- swelling of the eyelids
- respiratory distress.

The key to managing latex allergies and adverse glove reactions in healthcare professionals and patients lies in correct recognition and appropriate action.

A number of diagnostic procedures for allergy screening are available to evaluate suspected NRL or chemical allergy.

Consult your doctor or specialist for definitive diagnosis and recommendations.

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Minimising adverse skin reactions to gloves

- Switch to a synthetic (non-latex) glove
- Use a glove brand which has been washed or leached during manufacture to reduce residual chemicals which may cause the allergy
- Wear powder-free gloves
- Wash the outside of gloves thoroughly after donning (to remove glove powder before treating patients)
- Institute a regular skin care regimen
- Always use a neutral pH hand wash
- Wet hands before applying any hand wash and rinse completely after use
- Dry hands with a soft cloth/towel or low heat blow dryer
- Use a moisturiser between hand washes. Choose a moisturiser that is pH neutral, lanolin-free and low in fats
- Take care of fingernails
- Remove gloves slowly and place them in an appropriate container
- Never snap, flick or toss gloves into a disposal container
- Always wash hands thoroughly after removing gloves.

Managing the latex-sensitive patient

NRL is present in a variety of medical devices including catheters, elasticated bandages and wound drains. A standard questionnaire should be used to identify the risk of latex allergy in patients.

A patient questionnaire may ask if the patient has a history of:

- adverse reactions to NRL
- allergy to bananas, avocados or other fruits or nuts
- major or multiple surgical procedures as an infant or child
- frequent dental work, catheterisation or enemas.

Establishing NRL-free or powder-free policies and procedures is an important preventative measure to reduce the risk of an adverse reaction in both latex-sensitive patients and healthcare workers. Primary care units should develop and maintain latex-free protocols through:

- a Latex-safe Standard Operating Procedure Manual
- a Latex-safe allergy cart or means for staff to access non-latex items
- a pro-active occupational health program
- correct latex product identification.

Ansell glove alternatives

Ansell is continually working to reduce glove allergenicity and offers a variety of glove alternatives for people affected by adverse glove reactions. These include powder-free gloves (using DermaShield finishing processes) and DermaPrene Ultra gloves (latex and accelerator free).

For more information on glove alternatives and latex allergy, please visit our website at www.ansellhealthcare.com.

References

1. Yip, ES. Comments to the Maine Legislature on Proposed Prohibition of Sale of Non-sterile Latex Gloves. 2003.
2. Guyton, A. Textbook of Medical Physiology. Seventh ed. 1986, Philadelphia: WB Saunders.

Ansell

Ansell Limited is a global leader in barrier protective products. With operations in the Americas, Europe and Asia, Ansell employs more than 12,000 people worldwide and holds leading positions in the natural latex and synthetic polymer glove and condom markets. Ansell operates in three main business segments: Occupational Healthcare, supplying hand protection to the industrial market; Professional Healthcare, supplying surgical and examination gloves to healthcare professionals; and Consumer Healthcare, supplying condoms and consumer hand protection.