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### Latex Allergies

The incidence of serious allergic reactions to latex has increased in recent years. In rare cases, these reactions can be fatal. Health care workers and others who are frequently exposed to products containing latex should be aware of the potential for developing an allergic reaction. Individuals who exhibit symptoms of the allergy should be alerted to the need to limit future exposure to latex products.

#### What is natural rubber latex?

Natural rubber latex is a processed plant product derived almost exclusively from the tree *Hevea brasiliensis* found in Africa and Southeast Asia. Natural rubber latex should not be confused with butyl- or petroleum-based synthetic rubbers. Synthetic products, including latex house paints, have not been shown to pose any hazard to latex-sensitive individuals.

#### What is latex allergy?

An allergy, or immediate hypersensitivity reaction, occurs when the body's immune system is sensitized to a foreign protein and reacts by forming a specific type of antibody, called an IgE antibody, specifically directed against this protein. This kind of antibody is responsible for a wide variety of allergic responses which may range from hives to allergic rhinitis (hay fever), asthma, or rarely, life-threatening allergic attacks (anaphylaxis). These allergic reactions are provoked by exposure to common allergens including cat dander, ragweed pollen or antibiotics, such as penicillin. Latex allergic individuals make allergic antibodies directed against one or more proteins that are found in natural rubber latex.

#### What triggers the allergic reaction to latex?

When individuals allergic to latex come into direct contact with latex an allergic reaction may follow. Receiving medical or dental care from someone wearing a latex glove, blowing up a balloon or breathing in glove donning powder are all common examples of circumstances where allergic reactions to latex have been triggered.

#### What products contain natural rubber latex?

Latex is a common component of many medical supplies, including disposable gloves, airway and intravenous tubing, syringes, stethoscopes, catheters, dressings and bandages. Many of these medical devices come into contact with mucous membranes, which enhances the absorption of latex proteins that can trigger an allergic reaction. Latex gloves also frequently are implicated in allergic reactions due to the repeated direct exposure of the wearer's hands to latex proteins or due to airborne latex proteins that are absorbed by powders used to lubricate some latex gloves. While latex also is found in as many as 40,000 consumer products, including condoms, balloons, athletic shoe soles, tires, underwear leg and waist bands, rubber toys, nipples and pacifiers, these seem to cause problems in the most sensitive patients.

### What are the symptoms of latex allergy?

Allergy to latex proteins can cause symptoms similar to those seen in individuals who are allergic to bee venom or cat dander. Reactions on exposure to the allergen are generally acute and may mimic hay fever or asthma, with symptoms such as nasal congestion, hives or difficulty breathing. The most severe cases can result in anaphylaxis, a potentially fatal reaction that affects many parts of the body at once. Symptoms of anaphylaxis are usually immediate, progress rapidly and may include a dangerous drop in blood pressure, flushed skin, difficulty breathing, swelling of the throat, tongue and nose, and loss of consciousness. Emergency medical attention should be sought at the first sign of an anaphylactic reaction.

Skin problems resulting from the use of latex and non-latex gloves are frequently confused with latex allergy. Contact dermatitis is a frequent problem in glove wearers which can be caused by frequent hand-washing and drying with irritating soaps, skin abrasions from donning and removing gloves and irritation of skin covered by an impermeable barrier. It can also be caused by contact allergy to one or several of the chemicals used in the production of rubber gloves. These are usually local skin problems but can involve larger areas. These local skin problems are not life-threatening, but may precede the development of latex allergy if latex exposure is continued.

### How do symptoms develop?

In most cases, latex allergy develops after repeated exposures to latex. It should be noted, however, that direct physical contact with latex-containing products is not needed to trigger the allergic reaction. Cases of anaphylaxis have resulted from inhaling latex proteins, which can be absorbed by the powder that is used to lubricate some latex gloves. When the gloves are snapped on and off, the proteins become airborne and can pose a risk to some individuals with latex hypersensitivity.

### How common is latex allergy?

It is difficult to say how widespread the problem of latex allergy may be. More than 1,700 cases of latex allergic or anaphylactic reactions, including 17 deaths, have been reported to the U.S. Food and Drug Administration (FDA) since 1988. It is assumed that many other cases go unreported.

Known risk groups include:

Health care workers and others who wear latex gloves. Individuals who have a history or who will be undergoing multiple surgical procedures, such as children with spina bifida. Individuals with a history of progressive allergic reactions to foods known to cross-react with natural rubber latex.

Other risk factors are less defined but appear to include a history of:

Allergic rhinitis (hay fever) or any other allergy. Hand dermatitis, particularly if severe or if changing in severity in those who wears latex gloves.

Outside of these recognized risk groups, latex allergy is very uncommon, with estimates of less than a 1 percent prevalence in the general population.

### Why is latex allergy more prevalent now?

The introduction of Universal Precautions in health care settings to prevent the spread of AIDS and hepatitis B resulted in a dramatic increase in glove usage. According to the U.S. Food and Drug Administration, most of the gloves used are imported into the United States and the number of such gloves increased by 247 percent from 1991 to 1996 to over 18 billion pairs of gloves. Latex gloves are the largest source of direct contact with latex products and the major source of latex aeroallergen in areas where powdered latex gloves are in use.

### Who is most at risk of developing a life-threatening anaphylactic reaction to latex?

The risk of anaphylaxis appears to be greatest in individuals with prior allergic reactions to latex-containing objects or prior, unexplained reactions or anaphylaxis during a medical or surgical procedure. Health care providers with a history of severe or worsening latex-glove-induced eczema, hives or work-related rhinitis or asthma-like symptoms should be especially cautious.

### What foods are known to cross-react with latex?

Some foods to which latex allergic patients frequently demonstrate sensitivity include avocado, banana, chestnut, kiwi, raw potato, tomato, stone fruits (such as peach, plum, cherry) hazelnut, melons, celery, carrot, apple, pear, papaya, and almonds. Reactions are less common but have been reported to peanut, peppers, citrus fruits, coconut, pineapple, mango, fig, passion fruit, condurango bark and ugli fruit. Reactions to many foods have been reported in latex allergic patients. In many cases, researchers have confirmed the presence of cross-reacting proteins with proteins found in latex. It is now thought that many of these allergenic proteins are plant defense proteins found widely in the botanical realm.

While food allergy is common in latex allergic individuals, neither the presence nor the distinct food allergies can be predicted for any patient. More severe latex reactions do appear to necessarily increase the risk of food reactions. Initial manifestations of food allergy can be severe and even anaphylactic. Latex allergic patients should have personal epinephrine syringes available at all times for this reason alone. Patients with a history of food allergies to foods known to cross-react with latex rubber, particularly if expanding to new foods and progressive in severity, should be considered at risk for latex allergy as well.

### How can latex allergy be prevented?

All products and medical devices that come in contact with individuals at risk should be reviewed for possible latex content. Respiratory exposure to latex proteins can take place in the absence of skin contact, since latex glove donning powders bind latex proteins in the gloves and carry them into the air. In recognition of this fact and that powdered latex gloves are the major source of latex aeroallergen, the American College of Allergy, Asthma and Immunology has issued a joint statement with the American Academy of Allergy, Asthma and Immunology calling for usage of only non-powdered low-allergen gloves. Synthetic and vinyl gloves may be acceptable alternatives.

### How can health care workers protect themselves from developing latex hypersensitivity?

Health care workers with a history of latex sensitivity who must wear gloves should stop wearing latex gloves and their co-workers should not use powdered gloves. Care should be exercised in the choice of substitutes, since all synthetic or non-latex products are not equally impermeable to blood-borne pathogens. Health care workers with a history of glove-associated skin irritations, or contact dermatitis, should use alternative gloves (which may include latex gloves) and topical treatments to relieve their symptoms. Petroleum-based products have been shown to compromise the barrier function of latex gloves, and care should be taken in the choice of treatments used to relieve contact dermatitis.

### How is a suspected latex allergy confirmed?

An allergy skin test may be done to test for latex allergy, but there are currently no reagents commercially available for the test in the United States. Recent research has demonstrated that latex skin testing with the material that is currently commercially available in Canada and Europe has better diagnostic sensitivity than the current available FDA approved blood tests. Because of the potential for a life-threatening anaphylactic reaction to the test itself, skin prick tests for latex allergy should be performed only under the close supervision of an allergy specialist. An allergist-immunologist also can order an IgE allergy blood test to confirm the presence of IgE anti-latex antibodies. Skin patch tests are used to evaluate the cause of skin irritations, or contact dermatitis, caused by chemicals inherent in rubber gloves.

### How are latex allergies treated?

The best treatment for latex allergy is avoidance. Allergy specialists can provide latex allergic patients with information which will help them identify situations that place them at risk; strategies for avoiding an allergic reaction; and information about sources of natural rubber latex exposure and ways to avoid skin and mucosal contact. Patients with latex allergy are at risk of asthma on exposure to latex-containing aerosols and should try to avoid areas where powdered latex gloves or their products are used. Personal measures including warning bracelets and adrenaline syringes, like those commonly used for bee sting allergic patients, should be worn or carried at all times. Unexpected exposures to latex during dental, medical or surgical procedures may be prevented by warning health care providers of latex allergy prior to any scheduled visit and at the time of emergency visits. Allergic reactions to a wide variety of fresh fruits, vegetables, legumes and nuts may complicate the course of latex allergy. Most commonly, banana, avocado, kiwi, hazelnut, raw potato, tomato, papaya, citrus, celery or stone fruits are involved.

From the American College of Allergy, Asthma, and Immunology