

The risk of latex allergy and the use of latex precautions in the spina bifida population have been known for over two decades. Fear and panic in the early years have been tempered with research-based evidence and recommendations to avoid latex products from birth. There is, however, a tendency to ignore or minimize the risks.

Latex = Natural Rubber Latex (NRL)

- NRL is a liquid from *Havea Brasiliensis* tree; it is a natural, agricultural product
- Chemicals added to increase strength, elasticity, durability
- Production methods: dipped liquid and molded rubber
- Proteins (water soluble) in the NRL cause the allergic reactions
- Thinner, dipped products more likely to cause reactions (i.e. balloons, gloves, condoms)

In the late 1980's/early 1990's incidence of latex allergies sharply increased with onset of "Universal Precautions"

- HIV and AIDS epidemic brought increased use of latex gloves in healthcare workers
- Use of gloves sky-rocketed without manufacturing guidelines and standards; possibly "shortcuts" were taken to meet production quotas leading to increased NRL protein content in gloves
- 1989: article in *New Journal of Medicine* re: anaphylactic shock during surgery in several spina bifida children
- 1991: FDA issued medical alert for latex allergy in persons with spina bifida. "Latex safe" environments with avoidance of exposures recommended. The problem: nothing was labeled.
- 1998: FDA required labeling of all medical equipment containing natural rubber latex
- 1998 to present: over 40,000 items contain natural rubber latex but only medical products are labeled

At-risk populations:

- Spina Bifida: over 70% will develop latex sensitivity that could lead to latex allergy
- Healthcare, environmental and food service workers: 4-17%
- General population: 1-6%
- Industrial rubber workers: 10 % have latex allergy
- Those with atopy: history of asthma, allergies, eczema are more likely to react to natural rubber latex

Why so high in the spina bifida population?

- Unknown
- Probable cause: early, intense, and repeated exposures through multiple surgeries (>5), diagnostic tests, medical exams, and bowel/bladder programs

Latex Sensitivity versus Latex Allergy:

- Latex sensitivity: exposure with production of antibodies if tested; symptoms have not occurred
- Latex allergy: symptoms have been displayed after exposure

Routes of exposure:

- Direct contact with skin or mucous membranes (bladder, rectum, genital, mouth)
- Intravenous or internal organs/surgery
- Airborne/respiratory by inhaling powder containing latex proteins from gloves, balloons, etc.
- Ingestion of foods contaminated with latex powder through handling with latex gloves

Symptoms of exposure in an allergic person:

- Skin: rash, swelling, hives, itching, redness, irritation
- Eyes: itchiness, watery, tearing, redness
- Upper airway: runny nose, throat tightness/swelling, sneezing
- Lower airway: asthma, wheezing, coughing, shortness of breath, chest discomfort
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- GI: nausea, vomiting
- Cardiovascular: chest pain, palpitations, hypotension, light-headedness, tachycardia

Food and Plant Associations:

- Natural rubber latex comes from a plant and shares proteins with other plants
- Cross-reactions with many foods **may** cause problems; avoidance of these foods is not suggested unless person has positive latex allergy and/or has had problems with some foods
- Most common include bananas, kiwi, peaches, avocados, tomatoes, chestnuts, pears, poinsettias, and many others

What can we do?

- AVOIDANCE, AVOIDANCE, AVOIDANCE!
- “The only way to prevent allergic reactions to natural rubber latex is by avoiding contact with items containing natural rubber latex and with the latex-contaminated powder.”

Treatment

- Give antihistamine
- Have available auto-injectable epinephrine (EpiPen) and non-latex gloves
- Call 911/Emergency Department

Education/Preparation

- Standard of Care: **All** persons with spina bifida should avoid exposure to natural rubber latex throughout their lifetime.
- Become aware of resources:
 - SBA Latex List available in English and Spanish; updated annually
 - Check manufacturing labels; contact company’s website since product content often listed (MSDS – material safety data sheets); if not found, ask questions directly to consumer questions division
 - Latex List is generated and updated with written documentation by companies
 - Remember: FDA requires all medical products to state if they contain natural rubber latex
- Educate and advocate for latex-safe environments: home, hospitals, medical offices, emergency services, schools, daycare facilities, camps
- Prepare your own Latex-Free First Aid Emergency Kit
- Educate children from young age to become their own advocates, question content of gloves, etc.
- Beware of fads! New products continually hit the market and may contain latex. Research product content via the company’s website.

Throughout Lifespan

- Prenatal/Infancy
 - Educate parents so they are prepared to give safe infant care
 - Latex-safe delivery and nursery environment
 - Parents will provide non-latex bottles, nipples, pacifiers, teething rings, toys as well as any needed medical equipment

- Toddlers (1-3 years)
 - Latex-free toys
 - Safe environment at home, daycare, general environment
 - Parents must be extra-vigilant as mobility increases
- Pre-School (3-5 years)
 - Education of child, friends, etc to continue avoiding toys/products containing latex
 - School parties: education to avoid bringing rubber balloons into schools, restaurants, other gatherings
 - Children must be taught to avoid latex and to ask questions about items that might contain latex
- School Age
 - Same as above
 - Teach children about safe latex-free alternatives and to advocate for themselves
 - Carry EpiPen, avoid exposures, become aware of cross-reactive foods
 - Call paramedics if severe reaction occurs
- Teen Age
 - Same as above
 - Sexual experimentation is common; education about latex-safe contraceptives is needed before person becomes sexually active.
 - Importance of continued observance of latex precautions/avoidance must be stressed due to teenagers' natural tendency to take risks
- Adults
 - Continue to use latex precautions regardless of whether adverse reaction has ever occurred

Local Clinic Survey Results

- Good news: most children/families observed latex precautions and most have not had reactions; these persons may be “sensitized” with antibodies if blood were tested.
- Most were aware of FDA labeling requirements.
- Most were aware of life-long need to observe latex precautions.
- The concern: many people KNOW what they should do but DO NOT necessarily DO IT!
- Take opportunity to review with patients and families what taking “Latex Precautions” means: avoidance of natural rubber latex always to minimize chance of developing Latex Allergy. If symptoms have been experienced, avoidance needs to be continued hopefully to avoid more serious reaction in future.

Resources:

www.spinabifidaassociation.org

www.latexallergyresources.org

www.latexallergylinks.org