Loss Control
Quarterly Update

Latex Allergy

Latex sensitivity is used to describe allergic reactions related to the use of products containing latex rubber. In recent years there has been an increase in the number of people who have developed sensitivity to latex products. These conditions include mild skin reactions, sinus and eye irritation, as well as more severe asthmatic type reactions that may be life threatening. Employees working in many industries are at risk, but workers in health care related fields, electronics, food service, housekeeping, janitorial, and hairdressing are at particular risk due to the prevalent use of latex gloves. It is estimated that 6-17% of health care workers and 1-6% of the general public have latex allergy.

Latex

Natural rubber latex is manufactured from the rubber tree, *Heavea brasiliensis*. The sap of the tree contains a number of natural proteins. These proteins are responsible for the allergic responses. It should be noted that a number of synthetic rubber materials are called "latex" but only natural rubber latex contains the proteins responsible for the allergic responses. Latex paint and caulks are synthetic products, which do not contain natural rubber latex. Synthetic rubbers include butyl rubber, neoprene and nitrile.

There are over 40,000 different consumer products that contain latex. These include gloves, bandages, tape, catheters, diapers, respirators, boots and shoes, tubing, balloons, balls, toys, elastic in clothing and many other products.

A number of health problems are caused by exposure to natural rubber latex. Not everyone who uses natural rubber latex products will develop these health problems.

Inside this Issue

Produced by Erik Goplin-CIH, CSP
608/825-5644
Erik.Goplin@us.qbe.com

Irritant Contact Dermatitis

The most common health problem associated with use of natural rubber latex products is irritant contact dermatitis. Symptoms include dry, cracked and split skin. Irritation can be caused by the gloves or glove powders; but can also be caused by other sources such as soaps, detergents, chemicals or incomplete hand drying. Irritant contact dermatitis is not an allergic reaction but the lesions caused by the condition can allow latex proteins access to the body and promote the allergy.

Allergic Contact Dermatitis

The second type of reaction associated with glove use is allergic contact dermatitis. This condition is caused by chemicals such as accelerators and antioxidants used in processing the natural rubber latex. The condition is similar to poison ivy reaction with, blistering, itching, crusting and oozing lesions. It usually appears a day or two after glove use.

Immediate Hypersensitivity

The most dangerous reaction associated with exposure to natural rubber latex is a true IgE (immunoglobulin E)/histamine mediated allergy. Mild symptoms include itchy hives, which appear at the site of contact but may spread and become generalized. Respiratory symptoms include runny nose, sneezing, itchy eyes and asthma. Some individuals are at risk of anaphylaxis similar to that experienced from bee stings or reaction to penicillin. This condition involves rapid swelling of lips and shortness of breath, which can progress to shock and even death.

Most employees experience a progression of symptoms from skin reactions to respiratory symptoms over a period of months to years with continued use of natural rubber latex products. Risk factors for developing latex allergy include:

- Repeated or prolonged exposure to natural rubber latex
- Individuals who have had multiple surgeries or medical procedures involving latex medical products
- Individuals with active irritant or allergic contact dermatitis
- Individuals with allergic conditions such as eczema, hay fever, and asthma
- Individuals with food allergies, especially those involving bananas, avocados, chestnuts or kiwi fruit

Control Measures

Control of latex allergy involves minimizing exposure to natural rubber latex. Unnecessary use of latex products should be eliminated. Studies have found that the proteins responsible for latex allergy can bind to powder used inside gloves. When the gloves are removed, the powder becomes airborne. This airborne powder is a major cause of latex allergy not only to the wearer but also to anyone else in the area.

- Provide non-latex gloves where there is little potential contact with infectious materials such as food service or electronic workers
- If natural rubber latex gloves must be used, use low protein powderless gloves
- Use gloves only when absolutely necessary and for as short a time as possible
- Create a list of latex containing materials in the workplace
- Establish purchasing policies to avoid natural rubber latex
- Develop a latex control program
- Educate and train employees about the hazards of natural rubber latex, medical symptoms and procedures to limit exposure

Employees with any health problems related to latex should be instructed to report the condition immediately.

- Employees suspected of suffering early symptoms should see a physician

- First aid providers should be aware of special procedures required for latex sensitive individuals
- Alternatives to natural rubber latex should be made available to workers with latex allergy
- Move employees with latex allergy to areas without latex exposure or establish latex-free zones

Employees with latex sensitivity may still react to low-protein powderless latex gloves. These individuals must use a latex substitute. It may be necessary to change the types of gloves used by co-workers since even with the absence of powder; these gloves may cause allergic reactions to latex sensitized workers. Gloves labeled as “hypoallergenic” are not necessarily free from natural rubber latex and should not be used by employees with latex allergy.

Air Cleaners Using Ozone

Ozone is a colorless gas composed of three oxygen molecules that is a natural component of the earth’s stratosphere at a concentration of 1 to10 parts per million. Ozone is produced by interactions of diatomic oxygen with high energy cosmic rays and ultraviolet light.

Ozone can also be produced in electric arcs during welding, electroplating, mercury vapor lamps, x-ray generators, photoengraving, photocopying machines, high voltage electrical equipment and ultraviolet light sources in the workplace. Environmental ozone pollution is caused by chemical reactions between oxides of nitrogen and volatile organic compounds (VOCs) in the presence of sunlight. Emissions from industrial facilities, electrical utilities, motor vehicle exhaust, gasoline vapors and chemical solvents are major sources of oxides of nitrogen and VOCs. Sunlight and hot weather help form ground-level ozone in urban environments.

Ozone has many industrial uses. These include preparation of pharmaceuticals, synthetic lubricants as well as many organic chemicals. It is also used as a bleaching agent of wood pulp for high quality white paper. Ozone is also used for purification and disinfecting drinking water, wastewater and sewage, swimming pools and spas. Many hospitals use ozone to decontaminate operating rooms between surgeries.

Ozone can not be stored and transported like other industrial gases because it quickly decays into regular diatomic oxygen. On site ozone generators that employ coronal discharge tubes, cold plasma electrical discharges or ultraviolet light are the most common types of ozone generators.

The same properties of ozone that provide disinfection also potentially cause harmful health consequences when inhaled. Exposure to high levels of ozone causes extreme irritation of the respiratory system. Symptoms include cough, chest tightness, and shortness of breath. Persons with respiratory conditions such as asthma or chronic obstructive pulmonary disease (COPD) are at increased risk when exposed to ozone. Exposure for two hours to a concentration of 1.5 ppm causes a 20% reduction in timed lung vital capacity. Work rate has a pronounced effect on the respiratory symptoms, with reduction in lung capacity as the work rate increases. Therefore, the ACGIH (American Conference of Governmental Industrial Hygienists) has established exposure limits as eight-hour TWAs (time weighted averages) based upon workloads as follows:

Heavy work- 0.05 ppm
Medium work- 0.08 ppm
Light Work- 0.10 ppm

The ACGIH also has a short-term exposure limit (STEL) of 0.2 ppm for a 2 hour period. OSHA's PEL for ozone is 0.1 ppm.

Ozone can also be used to purify air and some air cleaners are being sold to the general public for control of indoor air pollution including removing viruses, bacteria and mold. According to the EPA, there is a large body or written materials on ozone and the use of ozone as an indoor air disinfectant but much of the material makes claims and draws conclusions without substantiation and sound science. Some vendors suggest that these devices have been approved by the federal government for use in occupied spaces. No governmental agency has approved these devices for this use. Manufacturers and vendors often use misleading terms to describe ozone. Terms such as "energized oxygen" or "pure air" suggest that ozone is a healthy kind of oxygen. EPA has declared that there is evidence to show that ozone is not effective for removing odor causing chemicals or viruses, bacteria, mold or biological pollutants. Furthermore, EPA states that results of some controlled studies show that concentrations of ozone considerably higher than recommended exposure levels are possible even after following the manufacturer's operating instructions. In light of this information, EPA recommends ozone generators not be used for controlling indoor air pollution. Methods should be used that include eliminating or controlling pollution sources, increasing outdoor air ventilation, and using proven methods of air cleaning.

Fatigue & Shiftwork

Workplace fatigue is a growing safety issue that impacts workers in many industries. We all sometimes feel fatigue but prolonged fatigue and tiredness can have a significant impact on the quality of life. Extended or unusual work shifts may be more stressful physically, mentally, and emotionally. Non-traditional shifts and extended work hours may disrupt the body's regular schedule, leading to increased fatigue, stress, and lack of concentration. These effects lead to loss of ability to effectively anticipate events and actions, the loss of ability to communicate effectively with co-workers and an increased risk of operator error, injuries and/or accidents. In some critical functions such as driving or operating equipment, fatigue can pose a significant hazard.

Society is oriented toward a traditional 8 AM to 5 PM workday. As many as 20% of workers may work outside of these traditional work hours. Research shows that being awake for 17 hours can impair neurobehavioral performance comparable to a blood alcohol level of 0.05%. Being awake for 24 hours can impair performance to an equivalent of 0.1% blood alcohol level. Even sleep loss each day in small amounts can build up over the course of a work week resulting in a highly fatigued condition. Humans are poor judges of their own fatigue. As a result, many industries such as trucking, aviation, rail, nuclear power and health care have strict limits of work hours. Some jobs, by their very nature, can induce worker fatigue. Mentally draining work or monotonous or low intensity work especially at night can promote fatigue. Without stimulation, fatigue-like symptoms can be experienced in a short time.

We are normally wired to be awake during the day and to sleep at night. Sunlight triggers us to get moving in the morning while darkness initiates the sleep system. Workers generally will not acclimate to night work, and sleep patterns will generally be disrupted so the non-work periods do not provide full recovery, resulting in sleep deprivation. Studies suggest that it can take up to 10 days to adapt to a night time work schedule.

Fatigue is a message to the body to rest. It is not a problem if the person can and does rest. However, if rest is not possible, fatigue can increase until it becomes distressing and eventually debilitating. The symptoms of fatigue, both mental and physical, vary and depend on the person and his or her degree of overexertion. Some examples include:

- Weariness
- Sleepiness
- Irritability
- Reduced alertness, lack of concentration and memory
- Lack of motivation
- Increased susceptibility to illness
- Depression
- Headache

- Giddiness
- Loss of appetite and digestive problems

When possible, managers should limit the use of extended shifts and instead increase the number of days employees work. Working shifts longer than 8 hours will generally result in reduced productivity and alertness. Additional break periods and meals should be provided when shifts are extended past normal work periods. Tasks that require heavy physical labor or intense concentration should be performed at the beginning of the shift if possible. Other controls include:

- Employees should not monitor complicated control panels more than two hours straight during a night shift.
- Stand, stretch and walk to increase attentiveness each hour.
- Commercial Drivers should follow DOT hours of service regulations
- Establish a sleep schedule and stick to it.
- Get regular exercise.
- Avoid stimulants before going to bed.

Managers and supervisors should learn to recognize signs and symptoms of the potential health effects associated with extended and unusual work shifts. Workers who are being asked to work extended or irregular shifts should be diligently monitored for signs and symptoms of fatigue. Any employee showing such signs should be evaluated and possibly directed to leave the active area and seek rest.

Make efforts, whenever feasible, to ensure that unavoidable extended work shifts and shift changes allow affected employees time for adequate rest and recovery. Extended shifts should not be maintained for more than a few days, especially if they require heavy physical or mental exertion.

Take regular and frequent breaks throughout the shift. In addition to formal breaks such as lunch or dinner, encourage the use of micro breaks to change positions, move about, and shift concentration.

We know how important it is for you to have a safe and efficient work place for employees. Be sure to check out our QBE loss control website at http://qbena.com/for-policyholders/loss-control.aspx Find safety training information, webinars and other resources to help your efforts. If you need more help, be sure to reach out to your QBE loss control consultant! Made possible by QBE.