

PREVENTING DERMATITIS IN THE WORKPLACE AND BEYOND

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Background

Skin is the body's largest organ, one that is exposed the most to outside elements. Such elements include chemicals, sunlight, and abrasions - all of which can cause skin irritation and inflammation. Skin problems can range from minor rashes and urticaria to eczema, skin ulcers and cancer. In general, any inflammation of the skin (derma) is known as dermatitis.

Dermatitis is one of the most common occupational diseases today. According to the National Institute of Occupational Safety and Health (NIOSH) contact dermatitis accounts for 90-95% of all reported occupational skin problems. While primarily associated with manufacturing, dermatitis can occur in any industry, including construction, healthcare, hospitality, and within the office environment. Dermatitis is not just limited to the workplace; the home also provides opportunity for skin irritations (dishwashing, housecleaning, yard work, sports and outdoor recreation).

Often dermatitis can be treated successfully with full recovery in most instances. It can, however, result in permanent disfigurement and, in extreme cases, disability. Understanding some of the causes of dermatitis and preventive measures can help to protect workers both on and off the job.

Causes of Dermatitis

Dermatitis can be broken down into two broad categories:

- Irritant Dermatitis
- Allergic (Contact) Dermatitis

Irritant dermatitis, as the name implies, occurs when the skin comes in contact with irritants such as chemicals of all kinds, soap and detergents, fiberglass, solvents, cutting oils and coolants, among others. Some chemicals are photosensitive, which can cause irritation when a worker is exposed to sunlight (UV or ultraviolet radiation).

Allergic dermatitis is the result of continuous exposure to an offending agent. In this case, initial contact does not necessarily result in immediate irritation, but can appear after repeated exposure. Once the skin is sensitized to the irritant, continued exposure results in a reaction. In fact, dermatitis may not show up in the exposed part of the body. Even some ingested chemicals and drugs, (such as bromine and Cipro), and food poisoning can lead to skin reactions. Examples of chemicals that can cause allergic dermatitis include organic dyes, plastic resins, rubber accelerators, pesticides, metallic salts and many natural plants, insect bites, cosmetics, and medicines.

Excessive rubbing and scratching, exposure to heat or cold, radiation, and plants or insects can also bring about dermatitis.

While most dermatitis develops on the hands and arms, breakout can occur on any part of the body. Mists and vapors can settle on the face or neck; chemical splashes on clothing can result in dermatitis on the torso; and walking or standing in a damp or wet environment can cause skin problems on the feet.

Common examples of dermatitis are pictured below:

- Machine shop workers exposed to cutting fluids and solvents can develop skin inflammation; indirect contact through misting or sprays can result in irritation to the body through clothing.



Fig 1: Dermatitis caused by Cutting Fluids

- Some chemicals are known to change the pigment of the skin, which may or may not be accompanied by irritation. In some cases, the loss of skin pigment may be permanent.



Fig. 2: Pigmentation change from use of a germicidal cleaner

- The use of latex gloves has been known to cause an allergic skin reaction in some people. Many healthcare workers using latex gloves for examinations and lab tests have complained of skin irritation.



Fig. 3: Rash on hands from a latex glove allergy

Preventing Dermatitis

The following guidelines can help reduce the chances of contracting dermatitis in the workplace, at home or on the road. This list is not intended to be complete or applicable to all conditions, but the general rules of recognition, evaluation and control apply in any event. Avoiding the causes of skin irritation is always the best approach, but when not possible, gloves or other protective gear is the next line of defense.

PLEASE NOTE THAT ANY METHOD OF CONTROL WILL BE FULLY EFFECTIVE ONLY IF SUPPLEMENTED BY GOOD PERSONAL HYGIENE (washing hands and face frequently after exposure and drying completely; and wearing clean clothing).

- Identify possible irritants to the skin -- read product labels, warnings and Safety Data Sheets.
- Find suitable substitutes - for instance, soap and water may be a suitable replacement for harsh solvents.
- Isolate the exposure to harmful chemicals and irritants - keep container lids closed when not in use.
- Avoid direct contact with known irritants - use tools or gloves instead of bare hands.
- Limit exposure time - read product warnings.
- Use moisturizing creams that can act to limit the harmful effects of chemicals on the skin.
- Apply sunscreen - use with a high UV factor when exposed to the sun or wind; beware of chemicals that are photosensitive (UV-ultraviolet) to sunlight after exposure.
- Provide sanitary facilities - encourage good personal hygiene, especially before eating or leaving the workplace.
- Consult with your personal physician - applicable if you know you are allergic to certain substances (i.e., some hotels use laundry detergents that can cause skin irritation, which is why many people bring their own pillows).
- Avoid excessive perspiration - moisture hastens the absorption of chemicals into the skin; also avoid licking perspiration off the upper lip.

If you must wear gloves to prevent or minimize contact with chemicals, irritants or hazardous substances, keep in mind the following:

- Select the correct type of glove. Some chemicals eat right through gloves. Consult the manufacturer, government web sites and trade association web sites or consult your doctor or healthcare professional.
- Choose the correct length and fit. Make sure it is the right size, does not slip, and will not promote perspiration (add baby powder to absorb any moisture). Use long sleeve gauntlet gloves if dipping arms into liquids or if splashing occurs.
- Replace punctured gloves immediately. Chemicals that seep inside gloves can do harm to your skin as they have little chance of evaporating.
- Clean reusable gloves prior to removal to prolong life and minimize cross contamination.
- Use care when removing gloves. Reversing disposable gloves is the best way to avoid touching the surface. Wash and shake off re-usable gloves, then lightly loosen both gloves by the fingers to remove. Do not touch the dirty surface of any glove with your clean hand.

Conclusions

There are numerous causes of dermatitis both on and off the job. This bulletin touches on just a few. It is important to remember that proper awareness and training are keys to preventing dermatitis and other skin irritations. Once an individual develops dermatitis, encourage immediate medical attention. Too often employees are reluctant to report skin conditions for fear of losing their job - or because they do not feel the problem is serious. Dermatitis that goes untreated can result in increased irritation and further inflammation. In rare cases, permanent disability or disfigurement can result.

Additional Resources

Here are some internet resources that can assist you in learning more about dermatitis and available products to help protect you and your workers:

- From the National Institute for Occupational Safety and Health (NIOSH), bulletin on latex glove allergies: <https://www.cdc.gov/niosh/docs/97-135/> and <https://www.cdc.gov/niosh/topics/skin/>
- From the Canadian Centre for Occupational Health and Safety: http://www.ccohs.ca/oshanswers/diseases/allergic_derm.html

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