

Recommendations for the prevention of hand skin inflammation in conditions of the increased use of skin irritants due to the prevention of COVID-19 infection

Irritative contact dermatitis (ICD) is an inflammation of the skin that occurs after contact with skin irritants, most commonly on the skin of the hands and forearms (Picture 1). A **skin irritant** is any substance used at a sufficient concentration and time to cause skin irritation and damage. The COVID-19 pandemic has contributed to the increased incidence of ICD due to the implementation of basic protective measures which have an irritative effect on the skin of the hands, such as frequent hand washing, use of antiseptics and disinfectants, and frequent and prolonged use of rubber gloves. Professions with increased risk of developing ICD in the workplace (**occupational ICD**) are primarily health professionals as well as all other workers who in their daily work have to constantly use prevention measures (e.g. policemen, firefighters, salesmen, transport workers and workers in service activities).

The most common causes of irritative contact dermatitis (ICD) are:

- long-term **skin contact with water** ("wet work"), which means more than 2 hours of "wet-work" in a day or washing hands more than 20 times per day
- **chemical skin irritants** that are increasingly used in the prevention of the COVID-19 infection (various antiseptics, disinfectants, soaps and detergents)
- **wearing protective rubber gloves** for more than 2 hours continuously during a work shift.

The hydrolipid surface layer of the skin has a pH value between 4.5 and 5.5, which is **mildly acidic**. Chemical skin irritants and water mainly have an

alkaline effect on the skin and consequently disrupt the acidic protective layer of the skin, which leads to skin irritation and potential penetration of microorganisms into the skin.

During the **use of gloves**, ICD occurs because of:

- sweating under gloves during prolonged wear
- penetration of a chemical through the glove (due to the damage of the glove or prolonged wear)
- entering of the chemical through the upper opening of the glove because of the improper use or an inappropriate glove size.

Picture 1. Irritative contact dermatitis of the hands



ICD prevention and mitigation includes:

- using lukewarm water for washing your hands, not hot water
- thoroughly drying hands after washing (best by tapping with disposable paper towels)
- regular use of neutral cream without dyes and perfumes (the ideal pH of a cream is 5.5 or 5)
- rubbing hand cream well into the skin with proper movements (Picture 2)
- paying attention to the symbols and warning signs on product labels and declarations (so-called pictograms) that indicate a possible irritating effect of the product on the skin (Picture 3)
- in severe cases of ICD, skin care lotion or cream can be applied abundantly on the hands, cover with cotton gloves, and left overnight for the purpose of skin healing

Picture 2. How to apply hand-protective cream



Picture 3. A pictogram indicating the irritative effect of a chemical on the skin and/or mucous membranes



Recommendations for ICD prevention during protective glove usage
(Picture 4):

- strictly follow the manufacturer's instructions for using gloves
- inform yourself about the chemical composition and resistance of the material from which the gloves are made
- hands should be clean and dry before putting the gloves on
- put cotton gloves under disposable gloves to absorb sweat
- apply cream before putting the gloves on (this reduces the sweating of the skin under the gloves, reduces degreasing and ensures hydration of the skin surface)
- wash your hands with water after using the gloves, dry them thoroughly and apply a neutral cream
- it would be ideal to use nitrile gloves which provide the highest level of skin protection

In the most severe cases of ICD, when skin damage becomes worse and cannot be alleviated by any measure, be sure to seek medical advice.

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Picture 4. Tips for proper glove use



Picture 1. Archives of Unit for Occupational and Environmental Health, Pictures 2., 3., i 4. are taken from: Skin prevention and ergonomics for hairdressers. Transnational ESF project „A close shave. Take care of yourself!“

