

# Food intolerance – when food irritates the skin

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Itching skin or skin rash – who would think that the daily diet can trigger the symptoms? Not only the substances that get in contact with the skin but also orally ingested substances may cause skin reactions. What can be done?

**W**hatever we ingest or fail to ingest – it has effects on our skin. Even the water we daily absorb influences the crinkliness or smoothness of our skin. Skin problems, however, appear in the context of

- food intolerance
- food allergies
- malnutrition
- side effects of drugs

## Attacks from the inside

The following food-induced metabolism problems may trigger the full panoply of reactions the skin is capable to produce:

- barrier disorders
- erythema
- itching
- urticaria (itching oedema)
- swellings of skin and mucous membranes
- pimples and blistering
- comedones and acne

The above-mentioned skin conditions are insidious and unpredictable unless their causes are known. Since the diagnostic facilities to discover the triggers of nutrition-based skin reactions are relatively limited, physicians recommend keeping a so-called nutrition diary. Food allergies are rather conspicuous in immunological respect, however to determine a successful diagnose it is essential to know what you are actually searching for. Food intolerances cannot be diagnosed immunologically since they appear in consequence of an insufficient or non-existing degradation of specific food components. Most of these conditions are due to enzyme defects:

- **Lactose intolerance:** Lactose or so-called milk sugar occurs in milk and is a disaccharide consisting of D-galactose and D-glucose. It can only be degraded in the small intestines if the enzyme lactase is available.

- **Fructose intolerance:** In this case the small intestines cannot resorb fructose, a monosaccharide which is contained in vegetables, fruits and honey. It should be mentioned here that fructose intolerance also appears if the fructose metabolism in the liver is impaired which is a serious hereditary dysfunction.
- **Sorbit intolerance:** Similar to the above-mentioned fructose intolerance, the sugar contained in fruits cannot be resorbed by the intestines. The body metabolizes sorbit via fructose as an intermediate stage, a fact which has to be kept in mind in case of fructose intolerance.
- **Saccharose intolerance:** In this case, the enzyme invertase is not available in the small intestines. Invertase hydrolyzes saccharose, a disaccharide found in sugar beets or sugar cane, into D-fructose and D-glucose molecules.
- **Histamine intolerance:** The symptoms appear if the biogenic amine histamine cannot be enzymatically hydrolyzed in the body. Histamine develops in food like sauerkraut, cheese or vinegar after fermentation during the manufacturing process.
- **Gluten intolerance (celiac disease):** Gluten is a substance compound consisting of different proteins found in the cereal flours. It is an important component in the manufacturing process of baked goods. Celiac disease is a specific sensitivity of the mucous membrane of the small intestines involving inflammations and subsequently insufficient reabsorption of food in the digestive tract.

The protein compounds of the following vegetable and animal products are on top of the list of food allergy triggering substances:

- Leguminous plants (soybeans, peanuts, lupines)

- Nuts (hazelnuts or filberts, macadamia nuts, pistachios)
- Chicken proteins (eggs)
- Cow milk products
- Fish and shellfish
- Fruits and vegetables (strawberries, cherries, celery)

Some of the allergens can be inactivated by way of denaturing (cooking) or hydrolysis (degradation to smaller peptides and amino acids). Another option is to refine the food, or in other words, to remove undesired by-products via specific process steps. The manufacturing of cosmetic oils for instance frequently includes a refining process and these refined products evidently are preferable to the cold-pressed variants. It is virtually impossible to avoid allergens in culinary herbs – comparable to cosmetic herb extracts.

### Far too little

A further cause of skin reactions is malnutrition as a consequence of food intolerance, imbalanced nutrition, diets or enzyme defects. Shortages within the following substance groups may appear:

- Trace elements
- Vitamins
- Essential amino acids
- Omega-3 and Omega-6 fatty acids

Said shortages result in characteristic skin conditions even though the specific identification of the particular cause can prove to be quite complex in individual cases.

Another trigger of skin problems are orally ingested medical drugs that impede specific enzyme activity and hence generate unintended effects or alternatively affect particular metabolism processes. The side effects can be linked to the duration of the therapy or even cause irreversible disorders in individual cases. Examples here are the increased presence of psoriasis related to particular cardiovascular drugs, increased cutaneous mycosis after therapies with immunosuppressive drugs or hyperpigmentations after the oral intake of tricyclic antidepressant agents or St. John's wort capsules.

Also perioral dermatitis has to be mentioned in connection with food intolerances. In this case, the direct contact with food components as e.g. spices (mustard, chilli etc.), essential oils (orange peels) and their oxidation products such as peroxides are significant.

### Skin care – the help from the outside

What else can be done besides searching for the root cause of the undesired skin conditions, avoiding the individually irritating food or substances, or undergoing a de-sensitization in the case of allergies? As a matter of fact, the skin care offers a multitude of different options which however require a well-funded knowledge of both the skin diagnosis and the composition and individual combination of cosmetic products:

- In case of an insufficient activity of the enzyme delta-6-desaturase which metabolizes linoleic acid into gamma-linolenic acid, the topical application of gamma linolenic acid (contained in evening primrose oil or hemp oil) offers relief for the neurodermatitic skin.
- Linoleic acid gained from unsaturated vegetable oils helps to form the skin-protecting ceramide I in the barrier disordered skin. As accompanying care, emulsifier free DMS preparations will replenish the empty depots in the bilayered skin barrier and protect it against harmful substances and microorganisms that affect the skin from the outside.
- Liposomal linoleic acid is very effective against comedones. If an acne bacteria infestation of the comedones can be diagnosed, it is recommended to add azelaic acid to the preparation.
- Liposomal fumaric acid can be beneficial in the accompanying skin care for the psoriatic skin.
- Inflammatory skin reactions can frequently be treated by inhibiting the enzyme 5-lipoxygenase with boswellia extract or by applying anti-inflammatory oils (evening primrose, linseed). Besides echinacea extract they also are effective components in the skin care of perioral dermatitis.
- If photo-sensitizing substances such as retinoids, tetracyclic antibiotics, tricyclic antidepressants or also St. John's wort are ingested, a 100 per cent sun protection is essential, either by applying UV filters or just staying in the shade. As a preventive measure also stable liposomal or nanoparticulate vitamin-C derivatives are suggested.
- In case of skin conditions of unknown origin, surprisingly positive effects can often be achieved by applying a mixture of vitamin-A, vitamin-C, vitamin-E derivatives and D-panthenol

- Trace elements such as copper, manganese, silicon and zinc influence the skin appearance. It is recommended to use them very carefully and purposefully, since there are also interactions between the different elements. Hence, a medical diagnose is essential in this case.

Concluding, some additional effects should be mentioned that can be observed in the daily practice:

- Smoking respectively nicotine consumption leads to a constriction of the peripheral vessels and lowers the skin temperature. The skin becomes wrinkled and pale.
- Psychosomatic-based aversions to certain food or even feelings of disgust may have similar effects to food intolerances and can also trigger skin reactions, among others.
- Multiple chemical sensitivity (MCS) involves a severe reaction to traces of substances that are experienced by scent or taste. The origins still are unknown. Toxic and allergic mechanisms have not yet been found.
- The temporary hypersensitivity to glutamates which are widely used in food treatment has been discussed controversially and has not yet been proved scientifically. There are no findings related to skin symptoms.

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