

Eczema information sheet

What is eczema?

Eczema is a disorder where the skin is dry, itchy, rough and red. Eczema can affect any part of the skin. It is also referred to as atopic dermatitis, or just dermatitis

What are the symptoms of eczema?

The predominant symptom of eczema is itch. People with eczema have increased tendency to itch, which is triggered more easily. This is probably related to another genetic tendency related to the microscopic nerves in the skin and to chemical messengers between these nerves and skin cells.

Eczema causes inflammation and once eczema is active, this inflammation causes further damage to the skin barrier. This leads to further disruption of the microbiome, worsening of the exaggerated immune response and increased itch. A vicious cycle results.

What causes eczema?

The underlying cause of eczema is multifactorial and complicated. In addition, there are many triggers and aggravating factors.

Skin barrier

Eczema is due to inherited abnormalities in the skin barrier, which is the outer part of the skin. One of the important functions of the skin barrier is to protect the inside of our bodies from the environment so that we do not literally dry out. An intact skin barrier also stops entry of irritants, allergens, and infectious organisms.

The structure of the skin barrier is like a brick wall. The skin cells are the bricks, which are held together by the mortar of proteins and lipids (fatty substances). People who get eczema have abnormalities in one of these components, which affects the function of the skin barrier, so that it doesn't function as it should.

When the skin barrier is faulty water can be lost from the skin more easily, so it dries out. This is aggravated by environmental conditions. Eczema often worsens in dry climates and is not related to water intake by mouth.

Skin which is prone to eczema is easily irritated.

Immune response

In addition to a genetic problem with the structure of the skin barrier, people with eczema have also inherited a tendency to an altered and exaggerated immune reaction.

Microscopic airborne allergens such as grasses, pollens, moulds, dust mite and animal fur particles can enter through microscopic breaks in the skin barrier and trigger an allergic immune response. It is possible that food allergy is also triggered in this way.

Eczema is associated with other immune conditions such as hay fever, asthma and food allergy. This tendency is referred to as being 'atopic'. Most people with eczema have a family history of one or a combination of these disorders.

Eczema is not an autoimmune condition as such, and most people with eczema do not have an immunodeficiency disorder.

Microorganisms

Microorganisms such as bacteria, viruses and fungi can also gain access through the defective skin barrier and trigger an immune reaction. In addition, there are abnormal anti-microbial defences which are both inherited and induced.

Staphylococcus aureus, a type of bacteria normally found on the skin barrier, overgrows other skin bacteria, and triggers an exaggerated immune response.

It is thought now that one of the main triggers of eczema is an *altered skin microbiome*.

What are the triggers of eczema?

- Environmental
 - Dry climate, low environmental humidity
 - Dry skin
- Irritation
 - Common irritants are water, soap, and detergents of various types.
 - Heat, sweating and friction also irritate the skin.
- Infection
 - Bacteria such as staphylococcus and streptococcus; viruses such as herpes (which cause cold sores and chicken pox), coxsackie (causes Hand Foot and Mouth disease), molluscum contagiosum; fungi such as Malassezia yeast.
 - Usually, microbial *colonization* is a trigger for eczema flares but can be a complication as well by causing true *infection* (fever, tenderness, pustules, abscesses).
- Allergy
 - Allergy is a less common trigger of eczema than irritation
 - Allergens can be in the air and settle on exposed skin, ingested as food, or in personal care products applied directly to the skin.
 - Food allergy is not usually directly caused by eczema. It is more commonly triggered by a different immune pathway which causes an immediate reaction known as urticaria (or anaphylaxis if it is more serious).
 - Eczema directly triggered by foods is quite rare. Food allergy is usually an association rather than a cause or trigger of eczema.
 - Focusing only on exclusion of foods and not addressing the other triggers will result in suboptimal improvement in eczema.
 - Allergy to airborne and food allergens are confirmed by skin prick testing (done by immunologists), but the risk can be identified by blood tests.
 - Allergy to ingredients in personal care and occupational exposure products is known as allergic contact dermatitis. Contact allergy is diagnosed by patch testing. This is only necessary in a small proportion of patients, when the eczema doesn't improve with treatment and management of triggers.

How is eczema treated?

At present we are not able to alter the genetically abnormal skin barrier and immune response so that eczema can be cured. However, by addressing the triggers we can manage

eczema so that it is not active and reduces its impact on health and quality of life – but this requires ongoing skin care and treatment.

Fundamentals of eczema management

1. Repair, protect and maintain the skin barrier. Reduce exposure to irritants, and regular application of moisturizer. This will also result in a more normal skin microbiome.
2. Identify allergens and avoid if possible.
3. Treatment

Treatment is aimed at reducing inflammation (redness) in the skin.

The mainstay of treatment is still topical corticosteroids. If skin care is undertaken and triggers are addressed this should reduce need for corticosteroids.

Under supervision topical steroids are safe and effective, and more so than other treatments.

Many people underuse topical steroids because they are concerned about side effects.

Many of these concerns are unfounded, and often relate to side effects of oral rather than topical steroid.

Thinning of the skin only occurs with some topical corticosteroids with long term inadequately supervised use.

With topical steroids the most effective management strategy is to use stronger steroids in increased quantities early, and taper as the eczema improves.

It is safe to use mild to moderate potency steroids once or twice weekly long term, if needed.

Other topical treatments include ‘calcineurin inhibitors’ such as pimecrolimus (Elidel) cream or tacrolimus ointment. These reduce inflammation by different pathways from steroids.

What if eczema does not respond to this treatment?

If eczema is more severe and not controlled with measures mentioned above further treatment options which can be considered:

Oral

Ant inflammatory medications eg Resprim/Septrim/Bactrim, methotrexate

Immunosuppressive drugs such as cyclosporin and mycophenolate.

Phototherapy (not offered at this practice, but available in Canberra).

New treatments include biologic drugs such as dupilumab (which inhibits a particular pathway of the immune response) are available on the PBS but strict prescribing criteria apply.

Another class of an inflammatory medication known as JAK inhibitors has recently been approved but not are available on the PBS yet.

There are several other promising treatments on the horizon for management (but not definitive cure) of eczema.

At present it is not possible to cure the tendency to eczema but the expectation that with proper management the skin will mostly be clear, and itch controlled. Skin care needs to be continued daily for the long term, and often intermittent or maintenance treatment is needed.

Further information

[dermnetNZ](#)

Royal Children's Hospital Melbourne Kids Health Information
[rchorg.au](#)

The Sydney Children's Hospital Network
[schn.health.new.gov.au](#)

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