

# Understanding **Eczema**

Dr David de Berker

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### IMPORTANT NOTICE

This book is intended not as a substitute for personal medical advice but as a supplement to that advice for the patient who wishes to understand more about his or her condition.

Before taking any form of treatment YOU SHOULD ALWAYS CONSULT YOUR MEDICAL PRACTITIONER OR PHARMACIST.

In particular (without limit) you should note that advances in medical science occur rapidly and some of the information about drugs and treatment contained in this booklet may very soon be out of date.

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# Contents

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What is eczema? .....	1
Atopic eczema .....	26
Contact dermatitis .....	40
Eczema treatments.....	57
Other treatments for eczema .....	137
Other forms of eczema .....	150
Questions and answers .....	180
Glossary .....	189
Useful addresses.....	198
Index.....	216
Your pages.....	235

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# What is eczema?

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## What will I find in this book?

This short book is intended for those who want to know more about eczema, either because they have it themselves or because it affects a relative or friend for whom they are caring.

There are several different types of eczema. The most common of these is atopic eczema – the kind suffered mainly by babies and children. This book therefore covers atopic eczema in childhood in greater detail than other forms of eczema.

Other types of eczema trouble us at different times of life for a number of reasons. For some, it is work related, whereas others develop a specific allergy to something to which they are exposed at home and work. And, as we get older, our skin becomes drier and thinner, which contributes to certain forms of eczema in old age.

This book should help you understand some of the basic rules in eczema, how it arises, the principles of treatment and what kind of professional help is available.

## What is eczema?

The term 'eczema' covers a wide range of skin problems, which trouble people at different stages in their lives. It crops up in many different ways, such as in an elderly person with dry red skin around the ankles, a child with weeping red areas on the wrists, or someone whose eyelids have become itchy, red, dry and puffy in reaction to make-up.

Common features of eczema include: itch, redness, dryness and wetness. These are described below.

### Itch

Itch occurs with nearly all forms of eczema, varying from mild irritation to a hopelessly distracting and distressing symptom that makes life miserable for the sufferer and others involved.

### Redness

Redness is usually present in eczema and this redness can fluctuate, appearing bright red at some times of the day while at others it is barely noticeable. The redness is usually most obvious when you are hot or have exercised, or after a hot bath.

### Dryness

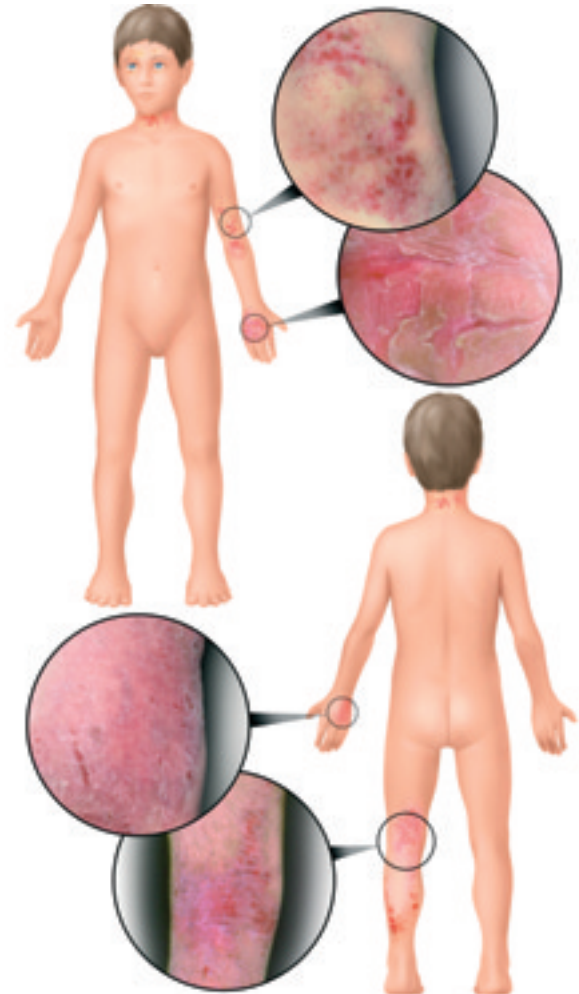
Eczema is usually dry, making your skin feel rough, scaly and sometimes thickened. Dryness reduces the protective quality of the skin, making it less effective at protecting against heat, cold, fluid loss and bacterial infection.

### Wetness

In severe eczema, or after a prolonged period of scratching, the skin's protective character can be reduced further. The skin becomes wet with colourless

## Areas of skin commonly affected by eczema

There are several different types of eczema. The most common is atopic eczema – the kind seen in babies and children. It is usually dry, making the skin feel rough, scaly and sometimes thickened. In severe eczema or after a prolonged bout of scratching, the skin becomes wet with colourless fluid, sometimes mixed with blood. The circles show the appearance in the most commonly affected areas.



fluid. This is fluid that has oozed from the tissues, sometimes mixed with blood leaking from damaged capillaries (small blood vessels). Wetness usually occurs when eczema is at its most itchy and is very likely to become infected.

Some wetness may come from small vesicles (pin-head blisters), which burst when scratched. These are most commonly found on the hands and feet, along the edges of the digits or on the palms or soles.

### **What is the skin made of?**

The skin is your largest organ, weighing about four kilograms and covering about two square metres. It is your interface with the environment, and it protects you against chemicals, bacteria and radiation, helping you to maintain a stable body temperature, and stopping you from losing fluid and vital body chemicals. Your skin contains nerve endings that allow you to feel touch, temperature and pain.

Nails, which are also part of your skin layer, are useful for prising things open, among other things. Skin is strong and resilient, yet also flexible. The skin is made of three layers: epidermis, dermis and fat. These are described below.

#### **Epidermis**

The outer layer is the epidermis, which contains sheets of epithelial cells called keratinocytes. These keratinocytes are produced at the junction between the epidermis and the second layer of skin, the dermis. The epidermis is supported from below by the dermis.

The epidermis contains many layers of closely packed cells. The cells nearest the skin's surface are flat and filled with a tough substance called keratin. The epidermis

contains no blood vessels – these are all in the dermis and deeper layers.

The epidermis is thick in some parts (one millimetre on the palms and soles) and thin in others (just 0.1 millimetre over the eyelids). Dead cells are shed from the surface of the epidermis as very fine scale, and are replaced by other cells that pass from the deepest (basal) layers to the surface layers over a period of about four weeks.

The dead cells on the surface take the form of flattened, overlapping plates, closely packed together. This layer is known as the stratum corneum and is remarkably flexible, more or less waterproof, and has a dry surface so that it is inhospitable to micro-organisms.

#### **Dermis**

The dermis is made up of connective tissue, which contains a mixture of cells that give strength and elasticity to the skin. This layer also contains blood vessels, hair follicles and roots, nerve endings, and sweat and lymph vessels and glands.

The elements of the dermis all carry messages or fluids to and from the epidermis. This is so that it can grow, respond to the outside world and react to what goes on inside the body.

#### **Fat**

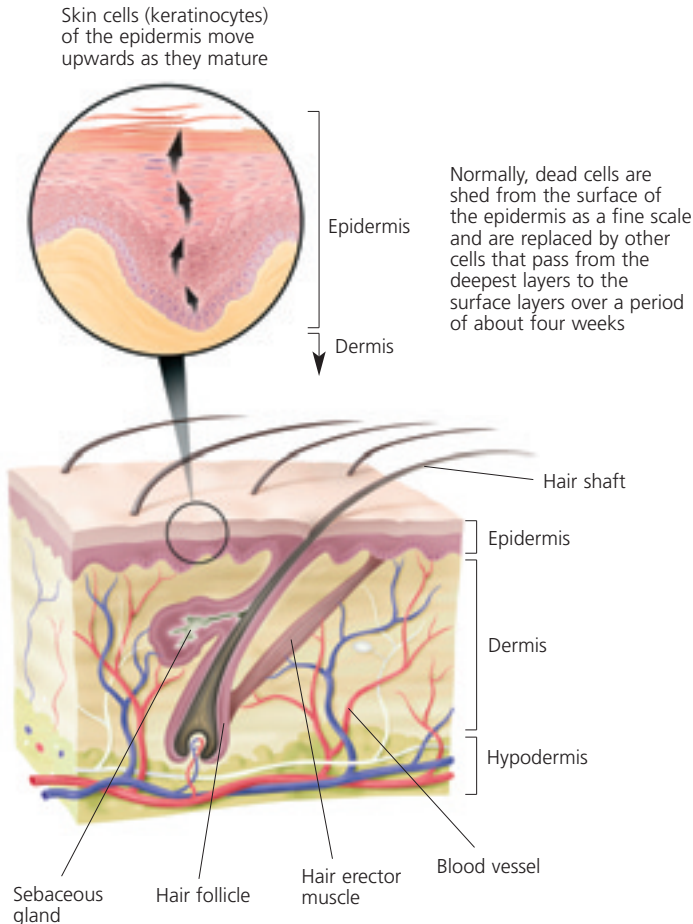
Underneath the dermis is a layer of fat that acts as an important source of energy and water for the dermis. It also provides protection against physical injury and the cold.

### **What happens in eczema?**

In eczema, the main problems occur in the epidermis

## The structure of the skin

The skin is made of three layers: epidermis, dermis and fat. The cross-section through the skin shows the structure of these layers and the circle shows the outer layer in more detail. Your skin protects you against chemicals, bacteria and radiation, helps you maintain a stable body temperature, and stops you from losing fluid and vital body chemicals.



where the keratinocytes become less tightly held together. Their barrier function is reduced.

## Who gets eczema?

In part this may be an inherited tendency where patients with some forms of eczema have altered protein in their skin cells. This protein is called filaggrin.

Where it fails to work adequately, the skin is more vulnerable to irritant materials and liquids and materials that might provoke an allergic reaction. For others with eczema, the skin cells may have been damaged by rubbing or some other process.

## How does that produce eczema?

In either instance, the skin becomes vulnerable to external factors such as soap, water and more aggressive solvents such as washing up liquid, or solvents used as part of work or hobbies. These solvents dissolve some of the grease and protein that contribute to the natural barrier of the skin.

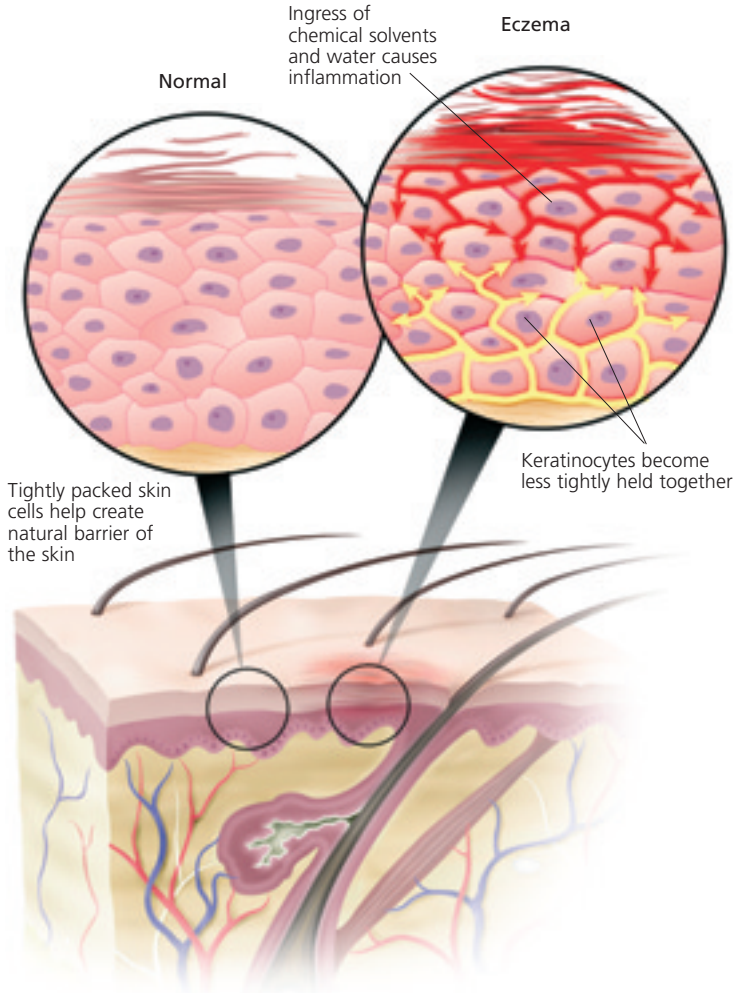
Once this process has begun, the skin may become inflamed as a reaction to minor irritation such as rubbing or scratching. This, in turn, makes the eczema worse and a cycle of irritation, inflammation and deterioration of eczema becomes established.

As part of this cycle, the skin becomes less effective as a barrier. It is less effective at preventing damage from solvents and abrasive materials acting from the outside, and it is also more likely to lose body moisture from within.

In a small patch of eczema, this can mean just a few vesicles (very small bubbles in the skin) bursting and leaking water. As the eczema gets worse, the fluid may come from the dermis and include blood from broken capillaries.

## The change in skin structure in eczema

The two circles show two parts of the skin in more detail. The normal part has tightly packed cells. In eczema the keratinocytes are less tightly held together, so they are more vulnerable to external factors such as chemical solvents and water, which dissolve the natural protective barrier of the skin.



When severe eczema covers a large percentage of the body surface, it is possible to lose substantial amounts of body fluid, blood and protein through the skin. In addition to these materials, the body can lose heat from the skin, which can become important in people who are physically infirm.

The barrier function of the skin is reduced further when scratching occurs and breaks are gouged in the skin by fingernails. As with solvents, this fuels the eczema and is termed the 'itch-scratch cycle'.

When skin becomes broken and there is a mix of blood, fluid and protein on the surface, there is a high chance of infection. This infection is usually bacterial and will add to the symptoms and severity of the eczema.

## Eczema and the immune system

The epidermis is the place where the outside world meets the body's immune system. Usually the immune system reacts only to parts of the outside world that present a danger, such as insect bites.

In many people with eczema, however, the immune system reacts more vigorously than usual to a wider range of normally harmless influences such as animal dander (small particles of hair or feathers), pollen and house-dust mite. As these trigger allergic reactions, these substances are known as allergens.

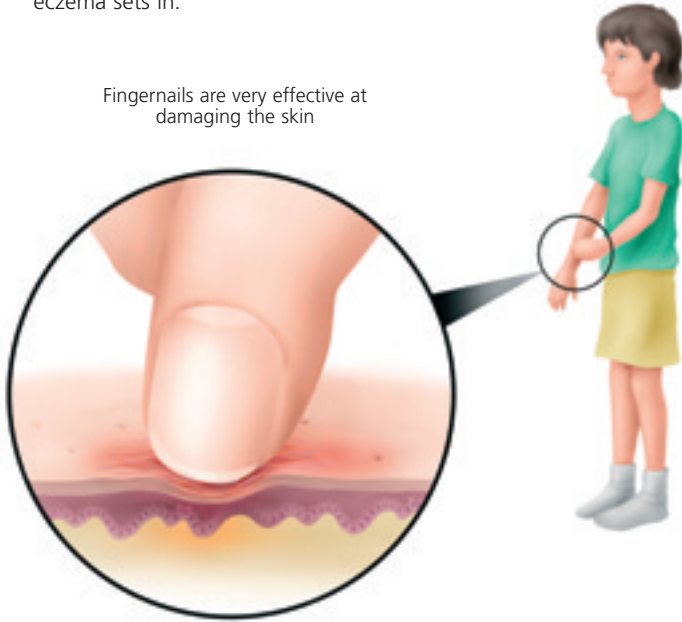
The immune system tries to destroy allergens by releasing a mixture of its own irritant substances, such as histamine, into the skin. The result is that the allergen may be altered or removed, but at the expense of causing soreness and making the skin fragile so other problems can develop, such as bacterial infection or damage from scratching.



## The 'itch-scratch cycle'

EczeMa is made worse by the 'itch-scratch cycle'. What happens is the skin affected by eczema becomes inflamed and sore as a reaction to minor irritation. This causes the sufferer to rub and scratch the affected area, making the eczema worse. A cycle of irritation (scratching), inflammation and deterioration of the eczema sets in.

Fingernails are very effective at damaging the skin



## How common is eczema?

EczeMa is one of the most common skin disorders. Studies by general practitioners suggest that around 30 per cent of all people with skin problems have eczema.

Of those referred to hospital with skin problems, about 20 per cent have eczema in some form. Atopic eczema is the most common form, particularly in children, affecting 10–20 per cent to some extent.

## What kind of eczema is it?

The box on pages 12–13 outlines the main types of eczema and should help you identify which type you are dealing with. EczeMa can also be categorised according to the main sites or the age groups typically affected. Each category is described in greater depth later in the book.

## Is it definitely eczema?

Several skin conditions are red and itchy like eczema and may look the same initially; some are described here. It is, however, important to seek medical advice about any persistent or worrying rash.

## Urticaria

Also known as hives, this is a distressing itchy rash of red bumps with a surrounding pale ring. Urticaria can crop up all over the body. It tends to move around, settling in one area, then appearing elsewhere, usually over a period of about 24 hours. The rash can disappear completely for short periods; it may go away during the night and gradually reappear during the day.

Unlike eczema, the skin does not become particularly dry and will not ooze unless scratching is so severe that it breaks the surface. Urticaria usually settles within a few days – although sometimes it can go on for months.

## Psoriasis

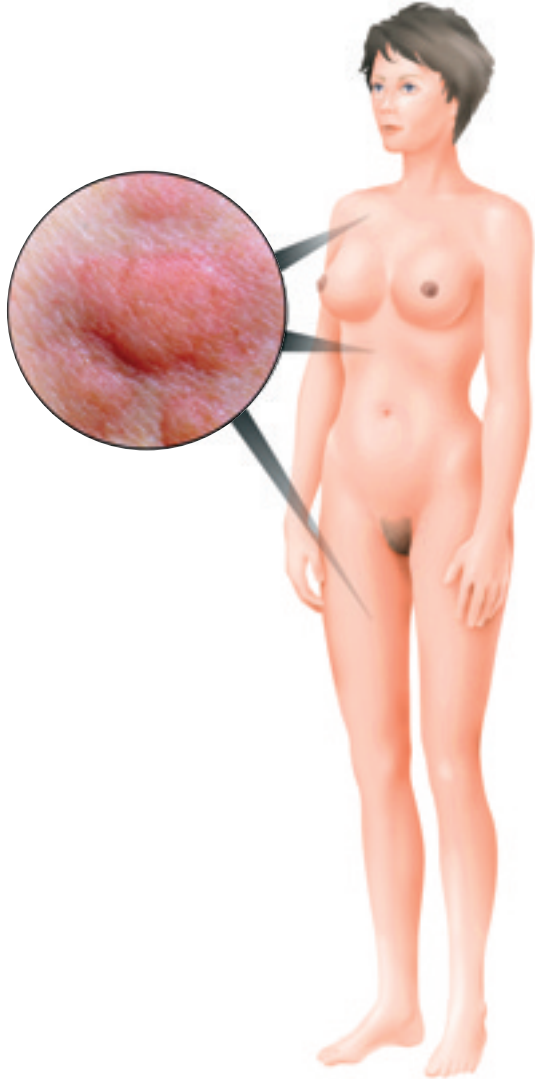
Psoriasis can look like eczema at several sites on the body, but is far less common in childhood. The rash appears more silvery and is less itchy. Unlike eczema, it can have a very clear edge, which is sometimes slightly raised.



The different types of eczema			The different types of eczema (contd)	
Type of eczema	Sites	Typical age	History	Other points
Atopic eczema (see page 26)	Flexures, elbows, knees, face and neck	Childhood, sometimes persists into adulthood	May also have asthma or hay fever, or family members with any of the three disorders	Most children improve with age and many get better completely
Irritant contact dermatitis (see page 40)	Especially hands	Adults, usually 30s onwards	May first develop during period of extra work or contact with solvents	Avoidance is critical in care
Discoid eczema (see page 153)	Limbs and trunk	50s to 70s	Scattered coin-sized areas of intensely itchy and slightly crusty eczema	Requires potent therapy
Allergic contact dermatitis (see page 42)	Any site exposed to the relevant substance	Usually adults	A patch of eczema connected in time and site with exposure to a specific substance	When severe, eczema may spread outside the exposed area
Gravitational eczema (see page 150)	Below the knee	50s onwards	May be a history of blood clots, bad varicose veins or leg ulcers	Affected skin may become discoloured and dark
Seborrhoeic eczema (see page 167)	Face, chest and scalp	15–45 years	Seldom itches much, improves in sunshine	May look a bit like psoriasis
Asteatotic eczema (see page 153)	Trunk and limbs	50s onwards	Moderate itch, very dry skin which looks like crazy paving	Sometimes a history of vigorous routine washing
Drug eczema (see page 155)	Symmetrical and may be widespread	Adults	Can develop long after the medication has been started and continue after it is stopped	Only alter prescribed medication under medical supervision
Lichen simplex (see page 172)	Patch of thickened skin, often shins, forearm or neck	Adults	A limited area of persistent itch that is habitually scratched or rubbed	Will not improve if scratching persists

### Urticaria or hives

Urticaria, also known as hives, is an intensely itchy rash that may affect the whole body or just an area of skin. It is usually caused by an allergic reaction. The circle shows what the rash looks like.



### Psoriasis

The epidermis in psoriatic skin turns over much more rapidly than in normal skin. Immature skin cells reach the surface, forming plaques of loose visible skin. It is most often seen on the front of the knees and the back of the elbows. The circle shows what it looks like.

