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Hello and welcome to the Health Hits podcast.

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I'm your host Tom Fisher. I'm a doctor, a trainer, and when researching these podcasts I'm often a student too.

Today's episode covers eczema or atopic dermatitis. Its common, so common, one in 20 people have it. Its rarely serious but often seriously annoying. We'll discuss what's actually happening under our skin, the history of the available treatments and the possible hope for the future.

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So lets get to it.

Eczema is a Greek word meaning "eruption" and refers to a number of skin conditions that lead to inflammation and itch.

The other name is dermatitis, again Greek, and literally meaning "inflammation of the skin". Anything ending in "itis" refers to inflammation. Dermatitis, inflammation of the skin, colitis, inflammation of the colon, wapitis, large red deer native to North America. Ok so that seems to be an exception.

Eczema leads to a dry, itchy rash usually in response to an allergy or irritant. It commonly affects children but it can persist into adulthood.

In very young children it tends to be the face and older children get it more at the wrists, elbows and knees.

But it can affect us anywhere.

The skin has two main layers. The outer layer is the epidermis, and deep to that is the dermis. The epidermis has layers of skin cells that stack up to form a protective layer, and they have an oily substance that fills the gaps between them. Think about bricks and mortar in a wall.

What results is a mostly waterproof layer that can withstand a degree of mechanical trauma and protect the deeper dermis from infection and irritants.

In eczema there is an immune reaction or over reaction in the skin where the immune cells start to react to environmental substances like pollen, dust, perfume, clothes fabrics. The immune cells release inflammatory chemicals which results in dilation of blood vessels and cause the reddish colour to the skin. The inflammation also damages the structure of the epidermis allowing water to escape and results in dry, flaky skin.

The concept of eczema was first described by Italian physician Girolamo Mercuriale in his paper of 1572 "De Morbis Cutaneis". You have no idea how many times I had to record that sentence.

The condition has likely affected us for as long as we've been humans and historical treatments have included blood-letting, laxatives, rubber bands, tar, and I'm sure our medieval ancestors would have tried leaches too.

We can't cure it, but we can try to keep the symptoms under control.

The 1950s brought the advent of topical steroid creams and decent oil based moisturisers which have made eczema much more controllable.

By applying a regular moisturising cream, or emollient, you can prevent the epidermis layer from losing water and drying out and protect deeper layers from contact with irritants. They can be water or oil based:

Water based moisturisers tend not to be recommended in eczema because they often don't replace the oily layer in the skin that has been disrupted in eczema and can also let environmental irritants through. They can also contain preservatives or fragrance so in themselves can be irritant. However, they are less likely to block pores and so could be a better option for skin on our face if we are prone to spots or oily skin.

So oil based moisturisers are the mainstay of eczema treatment as they act as a protective barrier and rehydrate dry skin whilst reducing further water loss.

They should be used regularly, at least twice a day, and in combination with a washing regimen that avoids irritating soaps or showergels. In most cases, washing with water, or lathering up your emollient and washing with that is the best option.

Its often helpful to keep going with the moisturiser even when the skin looks normal, to reduce the risk of future eczema flares.

I once had a patient who asked me if lots of emollients are only available on prescription because they can be used to make a flamethrower. This seemed like an odd thing for him to think, but it is true that lots of commonly used emollients are paraffin-based and paraffin is flammable. I can't find any evidence that its ever been used to make flamethrowers, and that's probably because the cream itself is not flammable. However, if you are using lots of emollients, then the paraffin can soak into bedsheets or clothing and this could ignite if in contact with flame. Around 10 people a year die in the UK in these tragic circumstances, but it should be seen in the context that GPs write over 14 million prescriptions for eczema creams every year.

The advice from the MHRA, the Medicines and Healthcare products Regulations Agency is to change clothes and bedsheets regularly and patients are advised not to smoke. The risk of combustion is probably not the only reason not to smoke and I plan to cover smoking in a future episode because how nicotine affects our brains is fascinating.

Because the eczema process is driven by the immune system a locally applied steroid cream can also help to terminate a bad flareup of eczema. If the skin in inflamed and irritated, that allows more irritants in and so provokes more immune driven inflammation and so the cycle continues.

The steroid creams can terminate this process by damping down the immune response and allowing the skin a chance to heal. Used in combination with a decent emollient this approach will usually settle even severe eczema flareups.

The steroid creams, or sometimes oral antihistamine tablets, can also take away the itch, breaking the itch-scratch cycle which often leads to ongoing inflammation, especially in young children who have no self control and cannot resist scratching. Actually from my experience that isn't just limited to children.

Its important to use the steroid for more than just a day or two. When applied they will damp down the itch, the redness, the soreness, but if stopped to soon, the epidermal layer won't have had a chance to recover and you'll be back to the same place in no time.

I usually advise people use the steroids for a decent amount of time, at least 1 or 2 weeks, to give the skin its best chance to recover and build up its barriers to further irritation.

Its important not to use steroids long term if possible because they can lead to thinning of the skin, colour change, or even stretch marks.

There are more powerful immune suppressing treatments on the market for difficult to treat eczema and currently a drug which blocks one of the immune cells in the skin is in the trial stage in the States.

When all is said and done, eczema is an irritating problem for lots of people and although there is not cure, there are treatment regimens that work well to control the symptoms if they are followed correctly.

Eczema does seem to be getting more common, and one widely believed idea to explain why, is known as the hygiene hypothesis. This concept, first stated in the 1980s, focuses on the lack exposure to childhood infections in modern households. Children in hunter-gatherer communities would be playing outside, maybe in the mud, in the faeces of animals or other humans, not washing their hands before eating, spreading bacteria between themselves and others. The hypothesis is that due to the relatively sterile conditions we grow up in, we no longer have the common bacteria or "old friends" which perhaps modulate our immune systems and prevent them over-reacting to irritants such as pollen or dust.

The theory can be further supported when looking other immune driven conditions such as hayfever or asthma, both of which are getting more prevalent.

We have come a long way, and modern hygiene and public health measures have helped reduce childhood death rates down 20 fold in the last 100 years alone, but the trade-off seems to be a rise in the more minor allergy driven illness including eczema.

If you want to know more about the topics I have discussed in this episode, ask questions, or request topics for future episodes, come and find us at www.HealthHits.info or on Twitter or Facebook @HealthHitsPod.

Thank you so much for listening, and please join me for another, episode of Health Hits.