

Eczema

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Eczema, a skin condition often seen among all age groups and race, has been concerning to many patients as it can not be cured. It has been discovered thousands of years ago and since then it had developed into many types, continuing its impact on humans.

Introduction

Eczema is among the most common skin conditions, it is also often referred to as atopic dermatitis which is characterized by the inflammation of the skin causing redness, dryness, and itching. Eczema is indiscriminate to age and race but it persists most commonly among children. The condition can affect virtually any part of the body, the specific location in which eczema appears varies in individuals, depending on their skin composition and the type of eczema they have. There is a broad spectrum of eczema variations, the seven main types of eczema are: atopic dermatitis, contact dermatitis, dyshidrotic eczema, neurodermatitis, nummular eczema, seborrheic dermatitis, and stasis dermatitis. For the purpose of simplicity, our team focuses on the generalized condition. The condition is not contagious and it often gets better with time although if left untreated, potential infections may occur. Eczema is caused by a variety of factors including genetic predisposition, environmental triggers, and the fluctuation of hormones to name a few. Generally, topical remedies can alleviate the symptoms of eczema but as a chronic (pro-long) condition eczema can not be fully cured. In addition to topical treatment, adjusting to environmental irritants can potentially provide good results. It is important to consult with your dermatologist for proper treatments and recommendations.

History

The history of Eczema dates back over 3,000 years ago, when the first records of Eczema-like symptoms were found in Ebers Papyrus, ancient Egyptian medical texts. At that time, it was recorded as an “enduring itch” and was treated by compressing beans and onions, as well as putting milk and sea salt on the affected area. During the Middle Ages, it was misunderstood and connected with “bad blood”, which led to treatments like bloodletting. However, ointments and warm baths were also used. In 1817, British Dermatologist Robert Willian and Thomas Bateman associated the symptoms of itching and rashes into a term “Eczema”, which comes from the ancient Greek word “ekzein”, meaning “to boil out”. By the 20th century, scientists started linking Eczema with immune system responses, which led to the development of treatments that target inflammation and strengthening of skin barriers.

Causes

Eczema is a skin condition that causes dryness, itching, and irritation. It is influenced by genetic predisposition, environmental factors, and immune system responses; while it cannot always be prevented, effective management through proper skincare and trigger avoidance is possible. Many experience it during childhood, but it can appear at any age (Cleveland Clinic).

Genetics plays a large role in eczema. It often runs in families. People with eczema may also have relatives with asthma or allergies. Scientists believe this is related to a gene called filaggrin. This gene helps the skin stay moist and protect itself. If the gene has a mutation, the skin becomes dry and easily irritated (National Eczema Association).

Environmental triggers in the environment also make eczema worse. Everyday products like soap, laundry detergent, or perfume can irritate sensitive skin. Pollen, dust, and pet hair can also cause flare-ups, especially for those prone to allergies. The weather has an impact as well.

Cold air in winter or rapid temperature changes often make symptoms worse. Stress adds to the problem, as it weakens the body's ability to handle inflammation (RemoteDerm).

The immune system is another factor. People with eczema have an immune system that overreacts to harmless things, like dust or certain foods. This reaction causes inflammation, which leads to redness, itching, and swelling (Cleveland Clinic).

Eczema is caused by several factors working together. While it cannot always be prevented, good skin care and avoiding known triggers can reduce symptoms. For severe cases, doctors can provide treatments that help manage the condition.

Symptoms

Symptoms are very common to see, because they are related with skin problems

- Dry skin
- Itchy skin
- Skin rash
- Bumps on your skin
- Thick, leathery patches of skin
- Flaky, scaly, or crusty skin
- Swelling
- Raw, sensitive skin from scratching

Symptoms of eczema can appear almost everywhere on your skin. The most common places where eczema will develop are:

- Hands
- Neck
- Elbows
- Ankles
- Knees
- Feet
- Face (especially cheeks)
- Around the ears and eyes
- Lips

*The least common areas are the private parts of men and women.

Eczema doesn't usually cause pain on its own. If you scratch your skin, it could break the surface of it and create a sore. Which could be painful. Some specific type of eczema, like dermatitis, causes a burning sensation and discomfort.

Prevention

Eczema is categorized as one of the most common skin illnesses, however the evidence-based proof of effectiveness in prevention of eczema is very limited. For general people to prevent eczema, maintaining a healthy daily routine such as ensuring adequate hydration by consuming water, and making dietary adjustments based on personal conditions is crucial. Most importantly, regular skin moisturizing and mindful water temperature during baths can play key roles in eczema prevention, since extreme dryness and damage of the protective

layer of skin can be the main causes for eczema. Beyond daily awareness, it is important to enhance skin protections for people in higher-risk occupational groups such as hairstylists, healthcare workers, and metal workers. Those individuals should imply extra protection such as wearing gloves, masks and ensure personal cleanliness. Additionally, early secondary prevention strategies should be implemented in individuals already affected by eczema to prevent relapse or worsening of the condition. Using strategies like taking adequate breaks, eating more healthily and drinking more water can avoid increased disease severity and long-term complications of eczema. While evidence that could support the effectiveness of some interventions is very limited at the moment, scientists' research has suggested that probiotic supplementation—in early life —may reduce the risk of eczema. This was verified through the double-blind experiment, in which a randomized placebo-controlled trial found the result that infants receiving probiotics had a significantly reduced risk of developing eczema in infants by age 2, yet only specific types of probiotics had shown an effect. These findings have not been supported by theories or reasons, but they highlight the potential of early intervention and probiotics in eczema prevention.

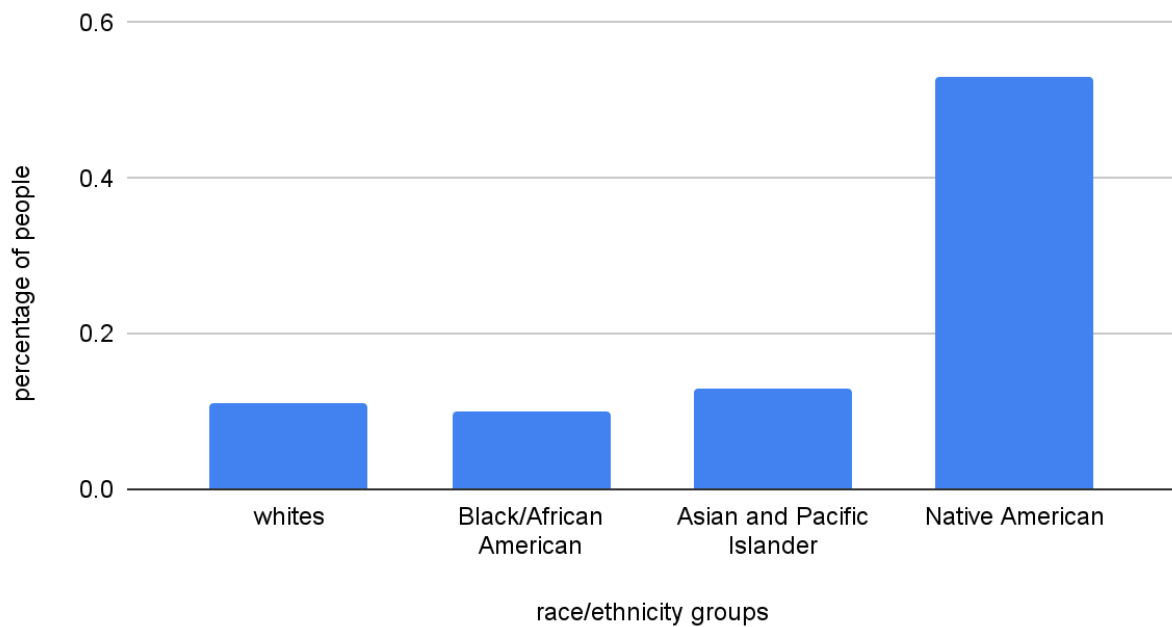
Treatment

There is no cure for Eczema, however patients have many treatment options. There are many Eczema medications that can be purchased over the counter, these medications are oral and topical. These medications can prevent symptoms of eczema such as itch, redness, irritation, or rash. Some medications provide sleep assistance for ones who have trouble sleeping due to eczema. Some OTC medications include but are not limited to Cetirizine, Loratadine, Diphenhydramine. Pain killers are also recommended by many providers such as Tylenol or Advil. When utilizing these medications over the counter, make sure to speak with your doctor

regarding restrictions and if the medication is suitable for you as FDA pointed out that there can be potential risks associated with these eczema medications.

Statistic

percentage of people affected in each race/ethnicity

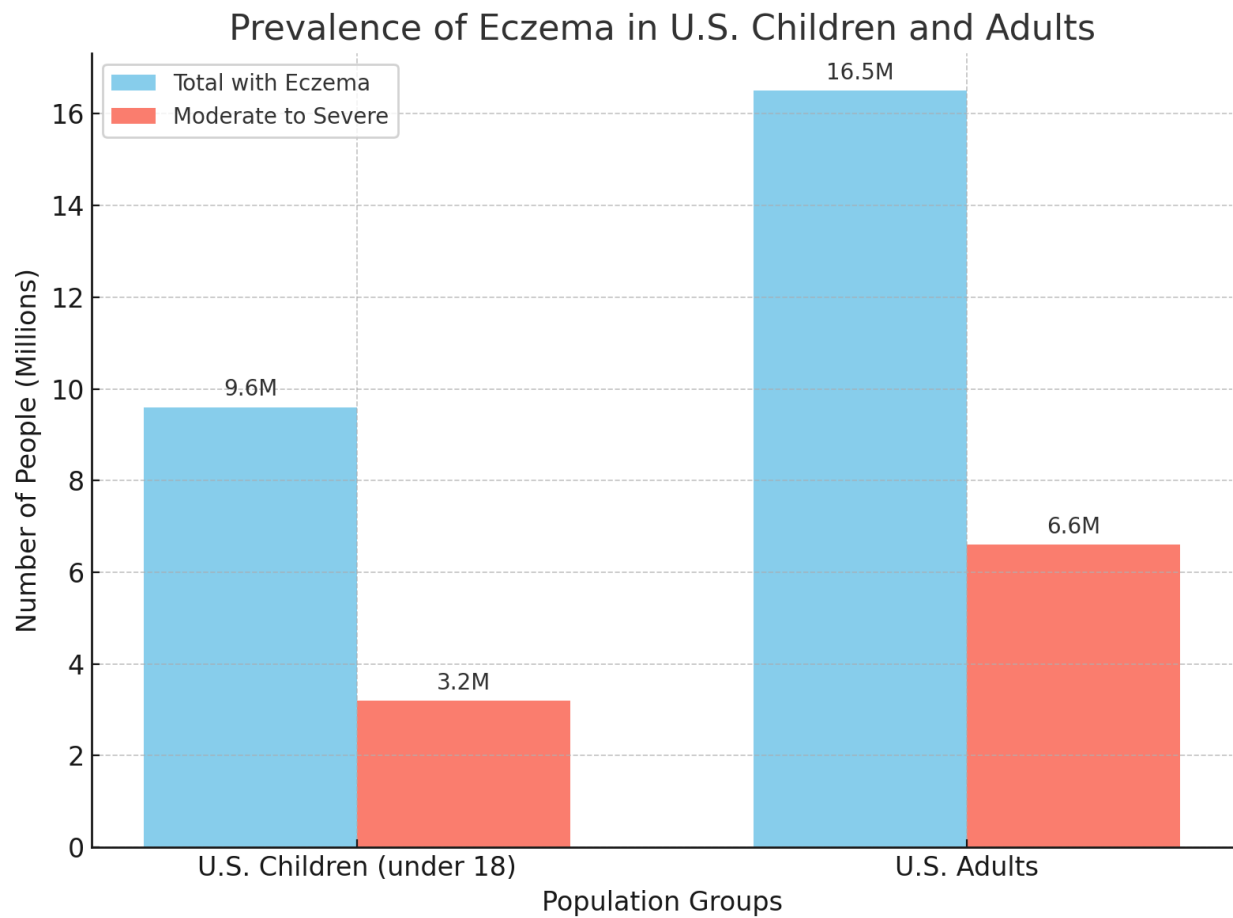
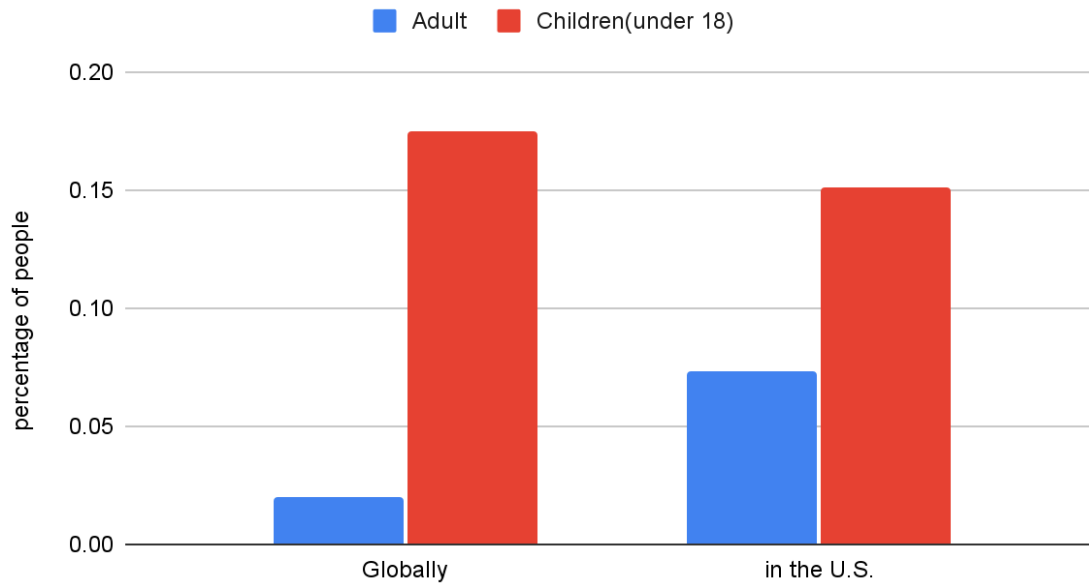


Note: The data is obtained from National Eczema Association *Eczema Stats*

Note: The data is obtained from Allergy & Asthma Network *Eczema (Atopic Dermatitis)*

Statistics

Prevalence



Note: The data is obtained from National Eczema Association *Eczema Stats*

Global Impact

Eczema is a very common condition that occurs to people, especially children under 18, around the world. It affects 17.5% children and 2% adults globally, and the rate of diagnosis is still increasing. Within these numbers of people, almost one third of them experience moderate to severe eczema. Eczema has influenced many people's lives, such as awkwardness in public due to skin condition or sleep loss due to itchiness.

Conclusion

As one of the more prominent skin conditions that can develop later in life, it is important to take care of your skin. If you notice and experience prolonged itchiness and rashes on your body, it could potentially be eczema and early response should be taken to prevent the worsening effects of it. Consult with your dermatologist or a licensed specialist to achieve the best remedies to ensure your condition does not intensify.

Reference

<https://pubmed.ncbi.nlm.nih.gov/23301666/>

Burr ML; Dunstan FD; Hand S; Ingram JR; Jones KP; (n.d.). *The natural history of eczema from birth to adult life: A cohort study*. The British journal of dermatology.

<https://pubmed.ncbi.nlm.nih.gov/23301666/>

<https://nationaleczema.org/blog/the-origin-of-eczema-and-the-centuries-old-history-behind-it/>

Hewett, L. (2023, March 6). *The origin of eczema and the centuries-old history behind it*.

National Eczema Association.

<https://nationaleczema.org/blog/the-origin-of-eczema-and-the-centuries-old-history-behind-it/>

<https://academic.oup.com/bjd/article-abstract/190/1/e6/7485639#>

A study about how many people around the world have atopic ... (n.d.).

<https://academic.oup.com/bjd/article-abstract/190/1/e6/7485639#>

Cleveland Clinic. Eczema (atopic dermatitis).

<https://my.clevelandclinic.org/health/diseases/9998-eczema>

National Eczema Association. What causes eczema?

<https://nationaleczema.org/eczema/>

RemoteDerm. Eczema: Underlying causes.

<https://remotederm.ca/blog/eczema-underlying-causes/>

Eczema. (2025, January 28). Cleveland Clinic.

<https://my.clevelandclinic.org/health/diseases/9998-eczema>

Atopic dermatitis (eczema) - Symptoms and causes. (n.d.). Mayo Clinic.

<https://www.mayoclinic.org/diseases-conditions/atopic-dermatitis-eczema/symptoms-causes/syc-20353273>

Eczema. (n.d.). WebMD.

<https://www.webmd.com/skin-problems-and-treatments/eczema/atopic-dermatitis-eczema>

Infants receiving *L rhamnosus* had a significantly ($P = .01$) reduced risk of eczema (hazard ratio [HR], 0.51; 95% CI, 0.30-0.85) compared with placebo, but this was not the case for *B animalis* subsp *lactis* (HR, 0.90; 95% CI, 0.58-1.41). There was no significant effect of *L rhamnosus* (HR, 0.74; 95% CI, 0.46-1.18) or *B animalis* subsp *lactis* (HR, 0.82; 95% CI, 0.52-1.28) on atopy. *L rhamnosus* (71.5%) was more likely than *B animalis* subsp *lactis* (22.6%) to be present in the feces at 3 months, although detection rates were similar by

<https://pubmed.ncbi.nlm.nih.gov/30231505/>

<https://www.sciencedirect.com/science/article/abs/pii/S0091674908013195>

Diepgen TL, Andersen KE, Chosidow O, Coenraads PJ, Elsner P, English J, Fartasch M, Gimenez-Arnau A, Nixon R, Sasseville D, Agner T. Guidelines for diagnosis, prevention and treatment of hand eczema. *J Dtsch Dermatol Ges.* 2015 Jan;13(1):e1-22. doi: 10.1111/ddg.12510_1. PMID: 25763418.

<https://nationaleczema.org/eczema/treatment/>