

NIH News in Health

National Institutes of Health • Department of Health and Human Services • newsinhealth.nih.gov

Inside News: 3 Anesthesia 4 Provider Beliefs and Treatment Effects 4 Seasonal Affective Disorder 4 Sleep Health

Rash Decisions

How to Deal With Itchy, Red Skin

You've broken out in a red, itchy rash. You're likely wondering where it came from—and, most importantly, how to make it go away.

Unfortunately, your mystery rash could have many causes. Maybe you switched to a new detergent or accidentally brushed against poison ivy. Maybe it came from a virus or fungus. It can be hard to pinpoint the cause.

Red, uncomfortable skin rashes are called dermatitis.

"When we use the term dermatitis, all we really mean is skin **inflammation**," says Dr. Brian Kim, a dermatologist at Washington University in St. Louis.

Our skin is a barrier, serving as the first line of defense against the outside world. It is filled with immune cells. These cells actively fight against viruses, bacteria, and other invaders. If a foreign substance is detected, immune cells start a chain reaction to neutralize the threat. This, in turn, causes inflammation.

Eczema • Many people are familiar with atopic dermatitis—the red, itchy rash commonly called eczema.



"It affects up to 30% of people, particularly in childhood, and it tends to run in families," explains Dr. Heidi Kong, a dermatologist at NIH. While some children may outgrow eczema, others will have the disease for life.

The cause of eczema is unknown. But skin microbes—bacteria, fungi, and viruses—may play a role. Kong is working to understand how the millions of microbes that live on your skin may contribute to eczema. Kong and her team have shown that certain types of bacteria are more commonly found on people with eczema. When applied to the skin of mice, these bacteria cause an immune response in the skin.

"We're trying to understand the bacteria on a deeper level," says Kong. "We see that they are associated with flares." Flares are periods when eczema gets worse.

Treatment using bacteria normally found on healthy skin

may help. In a small preliminary study, children and adults with eczema improved after using a spray that contained a specific kind of healthy bacteria. Research like this may one day lead to new treatments.

Scientists are also interested in understanding whether eczema can be prevented before it starts.

"I tell my patients that you were probably programmed from birth to be at risk for developing

atopic dermatitis," says Dr. Eric Simpson, a dermatologist at Oregon Health & Science University. Scientists estimate that the risk for eczema may be up to 60–70% genetic. But environmental causes also play a role.

What if a simple act, like moisturizing daily, could keep children from developing the disease? Doctors often prescribe moisturizing creams for people with eczema. These creams help to stop itching and restore the skin. Studies have shown that using moisturizers, sometimes called emollients, can prevent eczema flares.

continued on page 2

Definitions

Inflammation

Heat, swelling, and redness caused by the body's protective response to injury or infection.

Subscribe @



newsinhealth.nih.gov

continued from page 1

In Simpson's new study, parents will moisturize their baby's entire body each day using one of several emollients. "Our idea was to repair the skin barrier that's dysfunctional as early in life as you can," says Simpson.

Over several years, the team will be able to see whether emollient treatment helped prevent eczema. They are also looking at whether regular moisturizing could impact allergies and asthma, which are common for children with eczema.

How do you choose a moisturizing product if you have eczema? "It's a bit of trial and error," Kong says. While some people prefer petroleum jelly-based products, other people find they have better results with cream-based lotions.

"But because of the tendency for a lot of these patients to have sensitive skin, we do recommend they avoid products that have a lot of fragrances or preservatives," she says.

Other Rashes • Not all rashes are mysterious. Some have a very clear cause. If your skin touches something you're allergic to, it's

bound to get red and itchy. Common triggers include fragrances in soaps, lotions, and cosmetics. Some people are sensitive to nickel, which is often found in jewelry.

Your doctor may recommend a "patch test." Small amounts of different substances are applied to your skin to see if you have a reaction.

"People are very familiar with allergic contact dermatitis by way of poison ivy," Kim says. "But there are many, many environmental allergens that can cause contact dermatitis." Luckily, hydrocortisone cream may be all you need if the rash only covers a small area.

Psoriasis is another common form of dermatitis. It causes thick, red, scaly skin on the elbows, knees, scalp, and other parts of the body. It's caused by an overactive immune system. Skin ointments and medications that quiet the immune system can help. A doctor may also prescribe light therapy, where the skin is regularly exposed to ultraviolet light.

Rashes can also be triggered by bacterial and viral infections. And certain drugs may cause an itchy skin rash if you're allergic.

"That's a few of probably hundreds of rashes you can get," Kim says. But common to all of them? "A five-year-old child could tell you that whenever something's rashy, it itches. Itch is probably the most common symptom in the field of dermatology."

Itch Relief • For a long time, people questioned whether itch was even its own unique sensation. They thought it might be a mild form of pain. But scientists have discovered that itch has its own pathway in the brain.

That was the starting point for developing new treatments for chronic itch. Now researchers are



Wise Choices Mild Rash Relief

These tips may help soothe some rashes:

- Use moisturizer to calm your skin.
- Consider using over-the-counter medications like hydrocortisone if the rash covers a small area.
- Take a lukewarm bath.
- Avoid rubbing and scratching.
- Wear cotton clothing so the rash doesn't worsen.
- Get medical help if your itch is severe or has been going on for a long time.

focusing on finding drugs to help fight itch.

If you're a little itchy, it's okay to start with over-the-counter creams. Moisturizers and creams work well for dry, itchy skin. Mentholated moisturizers can cool the skin and provide relief. But some perfumes or dyes added to skin lotions may make things worse. For more tips on soothing a mild rash, see the "Wise Choices" box.

If you have a severe itch that's been going on for a long time, you should see a doctor. For these types of severe itch, Kim says, trying to use over-the-counter treatments is "like trying to put out a fire with a garden hose."

For an itchy rash, it's important to understand the cause. Call your doctor if your rash is so uncomfortable that it interferes with your sleep or daily activities. You should also seek medical help if you break out in a rash after taking a new medication.

An itchy rash can be trying, but with help, you can calm your skin and feel better. ■

NIH News in Health

ISSN 2375-6993 (Print) ISSN 1556-3898 (Online)

Editor Harrison Wein, Ph.D.

Managing Editor Tianna Hicklin, Ph.D.

Graphics Alan Defibaugh (illustrations),
Bryan Ewsichek (design)

Contributors Erin Bryant and Sharon Reynolds

Use our articles and illustrations in your own publication. Our material is not copyrighted. Please acknowledge *NIH News in Health* as the source and send us a copy.

newsinhealth.nih.gov



National Institutes of Health
NIH...Turning Discovery Into Health®

Office of Communications & Public Liaison
Building 31, Room 5B52
Bethesda, MD 20892-2094
email: nihnewsinhealth@od.nih.gov
phone: 301-451-8224



**Web
Links**

For more about dermatitis, see "Links" in the online article: newsinhealth.nih.gov/2020/01/rash-decisions

Going Under

A Closer Look at Anesthesia

Every day, people undergo surgery. Some operations require going deep into the body. Some can take many hours to finish.

Many of these procedures are possible only because of anesthesia. Different types of anesthesia may be used depending on the procedure.

Local anesthesia numbs a small part of the body, such as a tooth. Regional anesthesia is used for larger areas of the body such as an arm, a leg, or everything below the waist. People remain awake during local and regional anesthesia, but pain is reduced or blocked.

General anesthesia uses drugs that make people unconscious and unable to feel pain or move. It's used for long or invasive procedures. Every year, millions of people in the nation undergo general anesthesia.

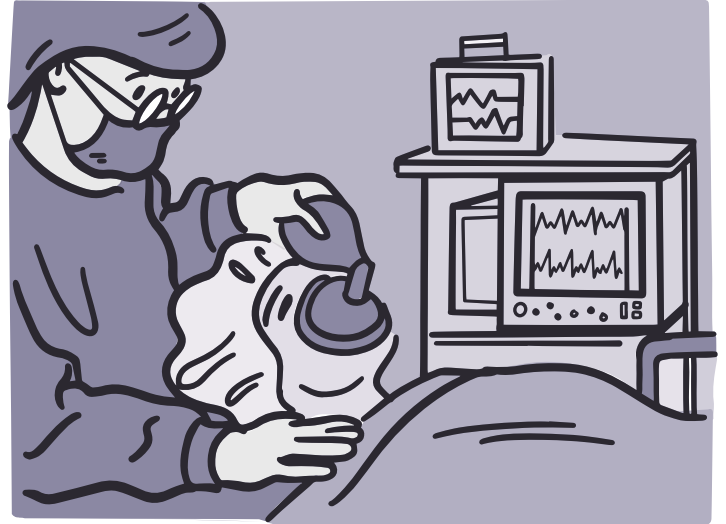
"Doctors and nurses have used general anesthesia for over 170 years," explains Dr. George Mashour, an NIH-funded anesthesia expert at the University of Michigan.

Since that time, new drugs and advances in how patients are monitored have helped make administering anesthesia safer. We know a lot about how general anesthesia affects the heart, lungs, and many other organs. Clinicians can use machines to track how these organs are functioning while people are unconscious. This lets them precisely adjust anesthesia doses to keep people as safe as possible.

But how general anesthesia affects the brain is still not fully understood. NIH-funded researchers are studying ways to track brain activity during anesthesia. This may help them better understand anesthesia's effects on the brain in general. It may also help them develop safer and more effective drugs.

General anesthesia does come with some risks. A rare complication is awareness under anesthesia. This is when a person gains some awareness during surgery, when they should be unconscious. Most often, this awareness is only of sounds. But sometimes it can include pain.

A more common unwanted effect of surgery and anesthesia is delirium. In delirium, a person is confused and often unclear about what is happening to them. Many people over the age of 60 experience delirium in the days following surgery. It's also common in children when they awake from anesthesia.



"Ideally, we want to ensure that we are providing enough anesthesia to the brain to suppress consciousness and memory. But we don't want to provide so much that we induce unwanted effects on brain function after surgery," says Mashour.

Mashour and his team recently used thin wires placed on the scalp to measure electrical activity in the brain during anesthesia. They saw several shifts in the way areas of the brain communicated while people were unconscious.

Different shifts were seen during different stages of anesthesia, such as going under and waking up. Understanding such brain activity patterns may help scientists develop a brain monitor for anesthesia, Mashour says. Studying anesthesia could also yield insight into consciousness itself and conditions where consciousness is impaired, such as sleep or coma.

If you're afraid of having general anesthesia, talk with your doctor. They can give you more information about the drugs used. Some procedures can also be done with types of anesthesia where you remain awake. See the Ask Your Doctor box for questions you can ask before going under. ■



Ask Your Doctor

Before going under anesthesia, ask:

- Which type of anesthesia will I have? Do I have more than one option?
- Do I need to stop taking any of my medications before anesthesia?
- Do I need to do anything special before I have anesthesia?
- Will I be awake or aware of what is happening during anesthesia?
- Will I feel any pain?
- How soon will I wake up after anesthesia?
- Will I have any side effects from the drugs used?
- How long will I need to stay in the hospital afterward?



Web Links

For more about anesthesia, see "Links" in the online article: newsinhealth.nih.gov/2020/01/going-under



Health Capsules

For links to more information, please visit our website and see these stories online.

Provider Beliefs May Affect Pain Relief

How your health care provider interacts with you is important. Their style can shape how you feel about your treatment. A new study found that people experienced less pain when the treatment provider expected a pain reliever to work. This may have been due, in part, to the provider's facial expressions.

The study didn't use real doctors and patients. Participants were assigned to play these roles. Those playing the doctor were first asked to rate their experience of pain relief

after applying two creams on their own arms. The creams were actually the same. But the "doctors" were given different levels of mildly painful heat with the two creams. That led them to believe that one was effective and the other wasn't.

The doctors then tested the patients to see how they responded to the creams. Researchers analyzed the facial expressions of both participants. They found that the amount of pain displayed in the doctor's facial expressions affected

the patient's overall pain rating. Patients experienced less pain when the treatment provider expected the pain reliever to work.

"When the doctor thought that the treatment was going to work, the patient reported feeling that the doctor was more empathetic," says Dr. Luke Chang of Dartmouth College. "The doctor may have come across as warmer or more attentive. Yet, we don't know exactly what the doctor was doing differently to convey these beliefs that a treatment works." ■

Treating Seasonal Affective Disorder

Is the long, cold winter getting you down? For people with seasonal affective disorder (SAD), the change in seasons brings on a form of depression. Most often, it begins in late fall or early winter each year and goes away in the spring and summer. Common signs of SAD include low energy, overeating, and sleeping too much.

If you have SAD, there are several things you can do. Try to be active and exercise. Spend time with other people and confide in a trusted friend or relative. Medications like

antidepressants and psychotherapy can also help. Some people may find relief through complementary health approaches, like light therapy. Using an ultrabright light box each day may help replace the natural sunlight you're missing during the winter. Light boxes give off light that's about 20 times brighter than ordinary lighting.

Some studies support a form of talk therapy adapted for SAD. This type of cognitive behavioral therapy focuses on replacing negative thoughts with positive ones. You

may also be asked to identify activities you enjoy.

A few small studies suggest that supplements like St. John's wort and melatonin may help with SAD. But experts caution that St. John's wort can interact with many medications. And melatonin may improve sleep for some people with SAD, but it's not known if long-term use is safe.

If you're experiencing SAD, talk with your doctor to come up with a plan to feel better. Learn more at nccih.nih.gov/health/tips/seasonal-affective-disorder. ■



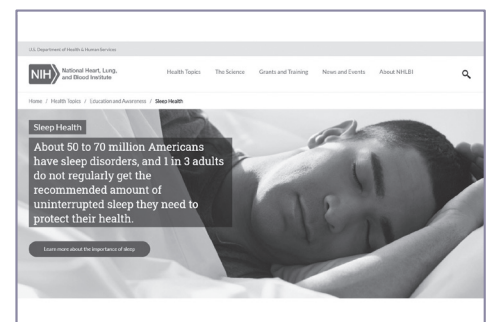
Featured Website

Sleep Health

www.nhlbi.nih.gov/sleep

Getting enough quality sleep is critical for good health. An estimated 1 in 3 adults doesn't get the recommended amount of sleep

they need. Learn more about sleep health, including tips for a good night's rest and information on sleep disorders.



How to get NIH News in Health

Subscribe online.
Visit newsinhealth.nih.gov

Subscribe

Get it in print.

Contact us (see page two) to get print copies free of charge by mail for display in offices, libraries, or clinics within the U.S.

