

TerranearPMC Safety Share

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When having a medical procedure, such as surgery or biopsy, you will be asked if you have any allergies. A surprising number of people are allergic to such medicines as penicillin and sulfa drugs and if mistakenly administered, can cause a patient to suffer some extreme reactions including life-threatening situations. An allergy starts when your immune system mistakes a normally harmless substance for a dangerous invader. The immune system then produces antibodies that remain on the alert for that particular invader or allergen. When this allergen enters the body the next time, these antibodies can release a number of immune system chemicals, such as histamine, that can cause a severe reaction. Such reactions are termed as an allergic reaction, which can - in numerous cases - be life-threatening.

OK, lots of terminology that may need some explaining!

To begin, your immune system produces substances known as antibodies. When you have an allergy, your immune system makes substances called antibodies that identify a particular foreign substance – known as an allergen, as harmful, even though it may not be the case. When you come into contact with the allergen, your immune system's reaction can inflame your skin, sinuses, airways or digestive system. So, our allergic reactions are the result of our body's defense mechanisms at work. Unfortunately, these reactions – or symptoms- can be, to say the least - unpleasant.

It begins with exposure. Even if you've been exposed to an allergen many times before with no trouble, your body may suddenly see it as an invader. If this happens, your immune system studies the allergen and makes antibodies against it. And the next time you come into contact with this allergen, your body will be ready to fight off this invader – weather the substance is a threat to your health or not. At this point the allergen is referred to as an antigen, as it now triggers specific cells, called mast cells to release substances – antibodies - to fight off the foreign invasion. And, in many cases, such as with histamine (antibody released to thwart antigens), symptoms such as swelling can occur. Swelling in your nasal passages might cause a runny nose. An antigen may also be formed within the body, as with bacterial toxins or tissue cells.

A well-known allergen is urushiol. This is the resin produced by poison ivy and poison oak and causes the skin rash condition known as urushiol-induced contact dermatitis. This happens as the immune system releases materials (proteins known as cytokines) that are supposed to fight the allergen (aka antibody), but unfortunately causes a reaction that is manifested by damaged skin (rashes, itching, boils, etc.).

You've probably heard of antihistamines. These medicines; and for the most part, over-the-counter medications (although, there are antihistamines that require a prescription), that tame allergy symptoms. But what are histamines? They're chemicals your immune system makes. Histamines act like bouncers at a club. They help your body get rid of something that's bothering you -- in this case, an allergy trigger, or "allergen." Histamines are released in your body as a response to allergens triggering specific cells, called mast cells, to release them (that is, histamines). Histamines then boost blood flow in the area of your body the allergen has affected. This causes inflammation, which lets other chemicals from your immune system step in to do repair work. Histamines then



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dock at special places called "receptors" in your body. The result? If your nose was affected -- say by pollen -- histamines prompt thin walls, called membranes, to make more mucus. You can get a runny or stuffy nose. And you'll sneeze. The mucus can also bother your throat and make you cough. Histamines can also make your eyes and nose itch.

A more technical description for histamine is: an organic nitrogenous compound involved in regulating physiological function in the gut and acting as a neurotransmitter for the brain, spinal cord, and uterus. Histamine is involved in the inflammatory response and has a central role as a mediator of itching. As part of an immune response to foreign pathogens, histamine is produced by basophils and by mast cells found in nearby connective tissues. Histamine increases the permeability of the capillaries to white blood cells and some proteins to allow them to engage pathogens in the infected tissues.

So, when people suffer from an allergic reaction, antihistamines are typically used to relieve the unpleasant symptoms caused by histamine's reaction to fight an allergen.

Some foods are naturally high in histamines. These include aged and fermented foods and alcohol (especially red wine). And, of course, some people may be sensitive to that.

"Histamine poisoning" can happen if you eat fish that wasn't kept at safe temperatures and spoiled before you got them. Those fish can build up high levels of histamines, which can make you sick. Doctors call this "scombrototoxin fish poisoning," or SFP. However, this condition is not likely to happen with good food safety practices.

Keep in mind that the amount of exposure can make a difference. If you're allergic to strawberries, you may have been able to eat one or two without symptoms. But once you eat three or four, you suddenly break out in hives. There's a tipping point -- or threshold -- for people with allergies. You can handle some exposure, but too much launches an immune system attack.

An allergic reaction can cause varied symptoms and signs and may consist of any of the following:

- Skin: irritation, redness, itching, swelling, blistering, weeping, crusting, rash, eruptions, or hives (itchy bumps or welts)
- Lungs: wheezing, tightness, cough, or shortness of breath
- Head: swelling or bumps on the face and neck, eyelids, lips, tongue, or throat, hoarseness of voice, headaches
- Nose: stuffy nose, runny nose (clear, thin discharge), sneezing, postnasal drip
- Eyes: red (bloodshot), itchy, swollen, or watery or swelling of the area around the face and eyes
- Stomach: pain, nausea, vomiting, diarrhea, or bloody diarrhea
- Other: fatigue or feeling tired, sore throat, dizziness, or lightheadedness

As one can imagine, the topic of allergies is vast and cannot be covered in a single information newsletter. So as a closing remark, every person needs to know if they have allergies and to have proper medication available in the event of a sudden allergic reaction.

Our food should be our medicine and our medicine should be our food.

Hippocrates