

ANAPHYLAXIS

Most people go through life without ever experiencing anaphylaxis. A rare but severe allergic reaction that begins suddenly and can be life threatening.

Anaphylaxis can happen moments after being exposed to a triggering substance – for example an insect sting, penicillin injection or ingesting a peanut. An episode can progress quickly so it is important to know the warning signs and be prepared.

Anaphylaxis is a systemic, at least 2 symptoms, potentially life threatening, Type I Immediate reaction involving IgE antibodies and mast cells containing histamine: a body's overreaction to an otherwise non-toxic substance. Symptoms include hives, swelling, throat closure, cough and wheezing or marked changes to the circulation called anaphylactic shock.

Symptoms can vary: The symptoms and course of anaphylaxis can vary. Initial signs of an anaphylactic episode can be deceptively mild, such as a runny nose, a skin rash all over the body, or a nondescript "strange feeling." These symptoms can quickly become more serious including difficulty breathing, swelling of the throat or other parts of the body, rapid drop in blood pressure, dizziness or unconsciousness.

- Sense of impending doom
- Tightness of the throat
- Hoarse voice
- Hives, swelling
- Abdominal cramping, diarrhea, nausea, vomiting
- Lightheadedness, drop in blood pressure

It is important to seek immediate emergency medical care if you or someone you know begins to go into anaphylactic shock. If the person loses consciousness, raise their feet while waiting for medical assistance. Keep them warm and make sure their airway remains open. If they seem to be having trouble breathing, lay them on the ground and tilt their head back. This helps get the tongue out of the way of airflow.

Emergency Treatment: In the most serious cases of anaphylaxis, cardiovascular collapse and shock can occur when there is a rapid loss of blood pressure and your tissues and organs do not get enough fluids and oxygen. Epinephrine is the most commonly used emergency treatment for anaphylaxis. Epinephrine constricts blood vessels in the digestive tract and skin and raises blood pressure. It also widens the air passages to make breathing easier. It is important to know that the earlier epinephrine is given, the more effective it is at stopping the reaction. Symptoms usually improve quickly after epinephrine is administered.

Triggers: The most common anaphylactic and anaphylactoid triggers include medications, foods, insect stings and bites, x-ray or CT contrast "dye", and latex. Other triggers include diagnostic testing materials, exercise, progesterone (a natural hormone) and seminal fluid.

Drug Allergies: Drug-induced anaphylaxis comes on fast — usually within minutes after the offending medication is given. The most severe reactions usually happen when the medication is administered directly into the bloodstream — through an injection or shot — rather than when taken orally.

A frequent cause of anaphylaxis is penicillin, a commonly used antibiotic responsible for approximately 75 % of medicine-induced anaphylaxis deaths in the United States. A patient who has had a prior reaction to penicillin is six times more likely to experience a future reaction than others.

Other antibiotics, anesthetics (medications used to sedate or numb an area during surgery), protamine (medication used to counter the effects of heparin, a blood-thinning medication) and insulin also can act as anaphylactic triggers. Anaphylactoid (anaphylactic-like) reactions can occur after taking aspirin (nonsteroidal anti-inflammatory drugs, or NSAIDs) and from radiographic contrast material used for diagnostic testing.

Food: While food allergies can develop at any age, reactions are most common in children. Even then, only 2% to 5% of children have diagnosed food allergies. Peanuts, tree nuts, fish, shellfish, milk and eggs are the most common culprits of severe reactions, although virtually any food or food component can cause anaphylaxis. It is possible for foods that have previously been eaten with no problem to trigger an anaphylactic episode. Anaphylactic symptoms usually occur immediately after eating the problem food, although it is possible for symptoms to subside and then reappear several hours later. There is a subset of patients with a rare "delayed" anaphylaxis reaction to a "red" meat product: Alpha-Gal. The best way to prevent food-induced anaphylaxis is to avoid your trigger food or foods. Check ingredient labels carefully and be especially cautious when eating out. Restaurant staff often is unaware of the full list of ingredients in a dish. If your child has a severe food allergy, make sure his or her school is prepared with an emergency plan of care including Benadryl and epinephrine in case of an unexpected anaphylactic attack.

Insect stings and bites: Anaphylactic reactions to insect venom occur in 0.5% to 5% of the U.S. population and account for about 50-100 deaths each year, or likely more (unreported). Insects known to trigger anaphylaxis include: honeybees, yellow jackets, white-faced hornets, yellow hornets, wasps, imported Fire Ants (southern United States), others very rarely reported.

Immunotherapy, or "allergy shots," is the only treatment that can reduce the possibility of future anaphylaxis caused by insect venom. Immunotherapy involves injections of venom (or fire ant whole-body extract) in gradually increasing amounts over the course of several months or sometimes years.

Latex: Anaphylactic and allergic reactions to latex have become more common in recent decades because of an increased use of latex in medical products. Latex allergies are most commonly caused by natural latex derived from the *Hevea brasiliensis* tree, rather than from synthetic latex. Allergies to synthetic latex are very rare. Products containing natural latex, which is most commonly the cause of allergies, include: disposable gloves, intravenous tubes, airway tubes, syringes, stethoscopes, adhesive tape, and catheters.

Exercise: Although less common, exercise can cause a physical allergy that leads to anaphylaxis. The digestion of certain foods or medications prior to exercise can be a contributing factor causing Food Dependent Exercise Anaphylaxis. Shrimp and celery, as well as aspirin and other NSAIDs, are the most common culprits. If you have experienced exercise-induced anaphylaxis after eating or taking medication, you should avoid exercise for four to six hours after digesting the problem substance, as well as carrying a self-injectable epinephrine.

Pinpointing the Anaphylactic Trigger: Your best bet for avoiding future anaphylactic episodes is to identify and avoid your triggers. Any substances or foods you may have come into contact with in the hours leading up to an anaphylactic episode are suspects. In making your list, be very detailed. It's not enough to say "hot dog," for example. Contact the restaurant and find out exactly what are each of the ingredients. Skin testing can be done for most foods, some antibiotics (including penicillin) and insect venoms. If the results of skin testing are inconclusive or skin testing is not available for the suspected allergen, it may be necessary to do an allergy blood test and a challenge test. Challenge tests involve introducing increasing amounts of the suspected allergen into your body through injection, inhalation or digestion.

Idiopathic Anaphylaxis

Some anaphylactic episodes, patients and doctors are unable to pinpoint a cause. These reactions occur randomly. When a specific trigger can't be identified, the anaphylaxis is said to be "idiopathic," which means "without external known cause."

Idiopathic episodes are indistinguishable from anaphylactic episodes where a cause has been determined. Carrying self-injectable epinephrine shots and educating family and friends about what to do in case of an anaphylactic episode can help minimize fear of random reactions. In addition, keeping a diary and being very aware of events that occur before episodes may ultimately help you find a trigger if there is one.