

Alpha-gal Syndrome

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What is Alpha-gal Syndrome?

Alpha-gal syndrome is a type of food allergy in which people are allergic to red meat and other products from mammals.

What causes Alpha-gal Syndrome?

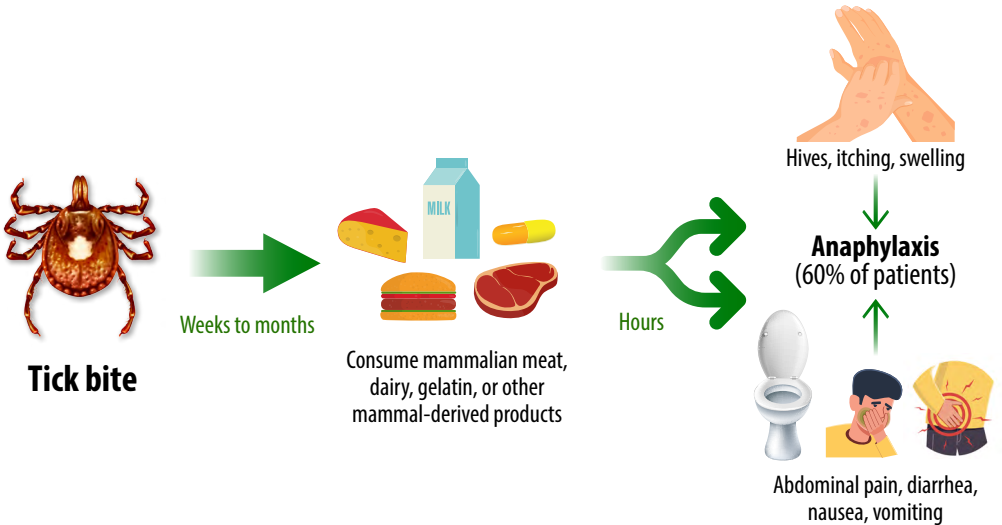
In the U.S., it usually begins with the bite of the Lone Star tick (*Amblyomma Americanum*), which transfers a sugar molecule called alpha-gal into the body, triggering a reaction from the body's immune system. This leads to mild to severe allergic reactions to red meat like beef, pork, and lamb. It can also cause reactions to other foods that come from mammals, like dairy products or gelatins. Not everyone who gets a tick bite will develop this allergy.

Other ticks besides the Lone Star tick can carry the alpha-gal sugar molecule because it comes from the blood of the animals the ticks bite, such as cows and sheep. It is unclear why some people have a strong immune response to these alpha-gal sugar molecules, but they do, and their bodies make proteins called antibodies.

These antibodies target the alpha-gals as something the immune system needs to eliminate. The response is strong; therefore, the person cannot eat red meat or mammal products without an allergic reaction. People with Alpha-gal syndrome should be aware that they must never take the cancer drug cetuximab (Erbix) because it is structurally similar, and their body's immune system will react to it as if it were red meat or mammal products.

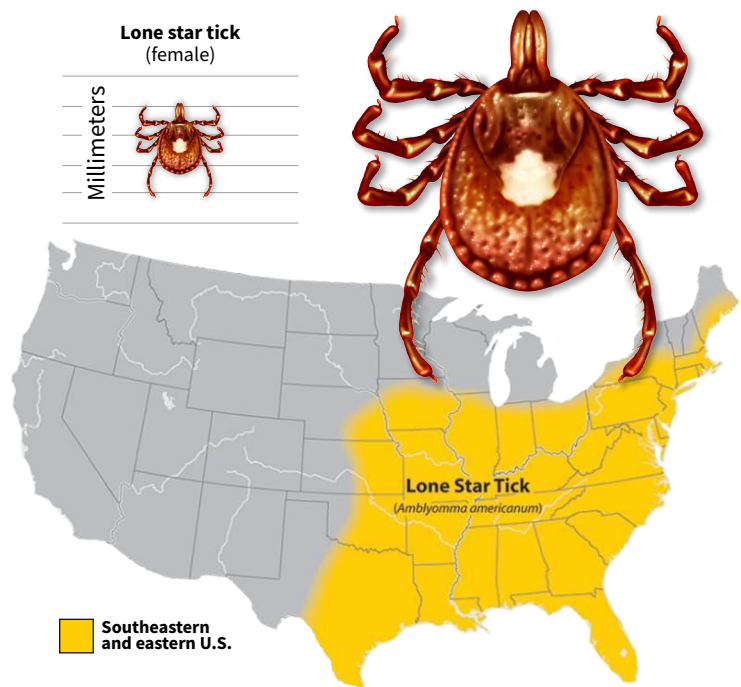
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Symptoms

- Usually appear 3-6 hours after exposure to red meat (beef, pork, and lamb), organ meats, mammal products (gelatins or dairy products)
- The time delay between ingestion of meat products and the allergic reaction is due to the alpha-gal molecules taking longer than other allergens to be digested and enter the system that moves blood through the body
- Hives, itching, itchy, scaly skin
- Swelling of the lips, face, tongue, throat, or other body parts
- Wheezing or shortness of breath
- Stomach pain, diarrhea, upset stomach, or vomiting



Seek Medical Attention

- If you have the food allergy symptoms listed above after eating meat products, see your primary doctor or an allergy doctor
 - Go to the nearest emergency room if you have any of the following symptoms:
 - Trouble breathing
 - Rapid, weak pulse
 - Feel dizzy or lightheaded
 - Drooling or not able to swallow
 - Full-body redness and warmth (flushing)
- Rapid pulse
 - Feeling dizzy, lightheaded, or passing out
- Anaphylaxis is treated with a medicine called epinephrine (adrenaline)
 - This is why you should always have an auto-injector (EpiPen, Auvi-Q, or another auto-injector) with you if you have Alpha-gal syndrome and always know where the nearest emergency room is located

Risk Factors

- Living in the south, east, and central United States
- Spending a lot of time outdoors
- Have gotten a lot of Lone Star tick bites

Complications

- Can cause a severe allergic reaction called anaphylaxis, which can be deadly without medical treatment
- Anaphylaxis symptoms can include:
 - Tight, narrow airways
 - Swelling of the throat that makes it hard to breathe
 - Drop in blood pressure, called shock

Prevention and Awareness

Avoid tick bites to prevent Alpha-gal syndrome by avoiding areas where ticks live, if at all possible. If you have to go into their habitat, do the following:

- **Cover up.** Dress to protect yourself when you're in wooded or grassy areas. Wear shoes, long pants tucked into your socks, a long-sleeved shirt, a hat, and gloves. Also, stick to trails and avoid walking through low bushes and long grass. If you have a dog, keep it on a leash.
- **Use bug spray.** Apply insect repellent with a 20% or higher concentration of the ingredient DEET to your skin. If you're a parent, put the bug spray on your children. Avoid their hands, eyes, and mouths. Remember that chemical repellents can be toxic, so follow directions carefully. Apply products with

the ingredient permethrin to clothing, or buy pre-treated clothing.

- **Check yourself, your children, and your pets for ticks.** Be watchful after you spend time in wooded or grassy areas.
- **Do your best to tick-proof your yard.** Clear brush and leaves where ticks live, and keep woodpiles in sunny areas. In Arkansas, along with other southeastern states, Lone Star ticks are most active during warm months when the temperature is over seventy degrees (usually from March through October).
- **Shower as soon as you come indoors.** Ticks often stay on your skin for hours before they attach themselves. Shower and use a washcloth to remove any ticks.
- **Remove a tick with tweezers as soon as possible.** Gently grasp the tick near its head or mouth. Don't squeeze or crush the tick. Pull it off with a careful, steady grip. Once you have removed the entire tick, throw it away. Apply an antiseptic where it bit you. That can help prevent illness.

How is Alpha-gal Diagnosed?

Your diagnosis is based on your personal history and medical tests. Your doctor will ask you whether you have gotten tick bites, if you have been to where ticks live, your symptoms, and how long after you eat meat or meat products that symptoms occur.

Your doctor will examine you and run the following tests:

- **Blood test** to confirm and measure the alpha-gal antibodies in your bloodstream to definitively diagnose you with alpha-gal syndrome
- **Skin prick test** to test for an allergic reaction to certain types of red meat because there are different kinds of meat allergies.

Treatment

- Avoid foods that cause your reaction, and check the ingredient labels on store-bought foods for
 - Beef
 - Pork

- Lamb
 - Venison
 - Beef broth
 - Seaweed
 - Organ meats
 - Gelatins
- Check soup stock cubes, gravy packages, and flavor ingredients in prepackaged products
 - Ask your health care provider or allergist for a list of foods to avoid, including meat extracts used in flavoring.
 - Be careful at restaurants and social get-togethers.
 - If you are unsure of what is in a food, don't eat it.
 - Bring your own food to a potluck or social event.
 - Keep epinephrine (Epi-Pen) with you at all times in case of a severe allergic reaction.
 - Know the location of an emergency room at all times, especially when traveling.

Outlook

Currently, there is no known cure for Alpha-gal syndrome. However, symptoms of Alpha-gal syndrome may lessen over time, especially if you don't get any more tick bites. It may take one to two years to see this change. *This is not guaranteed—everyone is different.*

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