Can a tick bite really cause an allergy to meat?

K-State food scientist describes a rare complication caused by the Lonestar tick and how to prevent it

By Taylor Jamison, K-State Research and Extension news service

MANHATTAN, Kan. – When warmer temperatures come, so do many species of biting ticks. Many people take precautions to prevent bites to them and their animals, but of particular concern is a species of tick that Kansas harbors: the Lonestar tick.

Kansas State University food scientist Karen Blakeslee says a bite from the Lonestar tick can cause a rare allergy – called an Alpha-gal allergy – when infected humans consume red meat and other food products.

The Lonestar tick is distinguished by the white dot in the center of its body. Though more common in the South, the Lonestar tick once was found only in eastern Kansas, but recently also has been found in western Kansas. Ticks are active through the months of April through September.

“The Alpha-gal molecule is carried in the saliva of the Lonestar tick,” Blakeslee said. “People bit by this tick can become sensitive and produce the immunoglobulin E (IgE) antibody. Unlike typical food allergies, which is a reaction to protein, this is a reaction to a specific grouping of two carbohydrates, galactose-α-1.3-galactose, a disaccharide found in most mammals.”

Blakeslee listed the types of foods that may trigger an allergic reaction:

- **Any red meat** such as pork, beef, rabbit, lamb or venison.
- **Other mammal products** such as gelatin, cow’s milk and milk products.
- **Some medications** that use mammal-derived gelatins, glycerin, magnesium stearate or bovine extract.
Blakeslee said fish, seafood, eggs, fruits, vegetables, or poultry are not known to cause a reaction.

Allergy symptoms may appear up to 3-8 hours after consuming a reactive food. Blakeslee said the symptoms include rash, hives, difficulty breathing, drop in blood pressure, dizziness, fainting nausea and severe stomach pain. These symptoms can be life-threatening; seek medical care immediately.

Although rare, Blakeslee said the Alpha-gal allergy can develop in people of any age and is usually permanent.

“The allergy is managed with antihistamines, corticosteroids, or other medications,” Blakeslee said. “Every person reacts differently, and it may be possible to slowly reintroduce red meat foods after a long period of time.”

To avoid being bitten by the Lonestar tick, she suggests observing precautions similar for any tick species.

“When outdoors, use insect repellent for ticks and always check your clothing for ticks,” Blakeslee said. “When home, take a shower and perform a thorough check for ticks. You are more at risk when you’ve had multiple tick bites.”

For more resources on the Lonestar tick and the Alpha-gal allergy, K-State’s Veterinary Diagnostic Laboratory offers information on the tick, and the CDC offers information on the Alpha-gal allergy.

Blakeslee, who is also coordinator of K-State’s Rapid Response Center for Food Science, publishes a monthly newsletter called You Asked It!; the June issue included a short story about the Alpha-gal allergy.

More information is also available from local extension offices in Kansas.

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FOR PRINT PUBLICATIONS: Links used in this story
K-State Vet Diagnostic Lab Lonestar Tick Info

CDC info on Alpha gal allergy https://www.cdc.gov/ticks/alpha-gal/index.html

You Asked It! Newsletter https://www.rrc.k-state.edu/newsletter/

Rapid Response Center http://www.rrc.k-state.edu/

K-State Research and Extension statewide offices, https://www.ksre.k-state.edu/about/statewide-locations.html
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