

- Ticks



**These tiny menaces can cause more than Lyme disease. Here's what you need to know about a new spate of tick-borne illnesses.**

**BY JEANNE ERDMANN**

If you live near the woods, have a dog who loves to romp in the grass or have kids at summer camp, you may already be on high alert for Lyme disease, an often debilitating infection that is passed to humans via tick bites. But it's not just about Lyme anymore: Ticks are being connected with new outbreaks of numerous diseases. Here's how to keep your family safe.

## A Mystery Illness

In January 2018, Nikki Smith, now 40, was lying in bed watching television when suddenly her chest hurt, her blood pressure plummeted and she thought she was going to pass out. Scared for her life, she went with her husband to the ER, where a battery of tests ruled out heart problems. She was sent home with advice to try to lower her stress level.

Nikki, a retail manager in Kentucky, went through this several times over the next two years—doctors blamed stress and eventually diagnosed her with panic disorder. But she was also plagued by a variety of gastrointestinal problems that her doctors believed were due

to complications from gallbladder surgery. Her symptoms, she says, had “no apparent triggers or rhyme or reason.” She was prescribed antidepressants, which didn’t help.

Meanwhile, her seasonal allergies worsened, and in one of her ears was fluid that felt as if it was moving constantly. Allergy tests turned up sensitivities to beef, pork, lamb and cow’s milk. Nikki was surprised, as she’d eaten meat for decades and hadn’t experienced hives, swelling or difficulty breathing, the symptoms typically linked to food allergies. She left the allergist’s office with a list of foods to avoid and a prescription for an EpiPen.

Finally, in May 2021, Nikki visited a new gynecologist and

mentioned her allergies. The doctor suspected alpha-gal syndrome (AGS), an allergy to red meat and anything containing mammalian products that is linked to, of all things, tick bites. Her test for AGS came back positive. Nikki lives in a heavily wooded area. “I probably had three tick bites the summer before that January,” she says.

## Tick Talk

The unusual name of alpha-gal syndrome comes from alpha-gal, a sugar found in all mammals except humans and many other primates. Months after getting a tick bite they’ve totally forgotten about, a person who develops the syndrome will eat red meat

and experience symptoms hours later. While some people with AGS get hives and similar skin reactions, others experience gastrointestinal issues like heartburn and diarrhea or cardiac symptoms like those Nikki experienced. That January night, she didn’t have any idea that her dinner of spaghetti with meat sauce had set off those symptoms, or that it had all started with a tick bite months earlier—and the ER doctors didn’t know that either.

AGS is one of many tick-borne conditions that are increasing in frequency. Lyme disease and AGS are only two of 17 mentioned on the Centers for Disease Control and Prevention’s website, and their rates are on the rise. Climate change is extending the warm



LIFE + HEALTH / SUMMER SAFETY

months of high tick activity, increasing ticks' numbers and giving them more chances to find us, bite us and make us sick. "Even if you don't live where ticks are a problem, you may get exposed on vacation," says Georges Benjamin, M.D., executive director of the American Public Health Association.

Scott Commins, M.D., Ph.D., the Dr. William J. Yount distinguished professor of medicine and pediatrics at the University of North Carolina at Chapel Hill, was on the research team that first linked AGS with ticks. "These are not symptoms that would bring you to the allergist's office," he says.

Today, between word of mouth and the syndrome's prevalence in the area, his practice deals almost exclusively with AGS.

The number of people with AGS is hard to pin down — but Dr. Commins and the CDC estimate that there were approximately 450,000 affected individuals in the U.S. last summer. Those in the Southeast and the Midwest and on Long Island in New York are considered most at risk, with the most prevalence in Missouri, Arkansas and Oklahoma. "Alpha-gal syndrome isn't on the radar everywhere, so your doctor may not be familiar with it," says Jennifer Platt, DrPH, who cofounded the nonprofit Tick-Borne Conditions United with Maine native Beth Carrison. Carrison was diagnosed with both AGS and Lyme disease, while Platt contracted AGS and ehrlichiosis, a tick-borne disease that can bring flu-like symptoms such as fever, chills and headache.



“  
**Climate change can extend the warm months of high tick activity, giving the bugs more time to find us, bite us and make us sick.**”

“

**Lone star ticks, the biggest culprits in AGS, are aggressive.**

**They know you're there and will run toward you.”**

## These Bugs Really Bite

A handful of species in the U.S. carry the big diseases: Black-legged ticks (a.k.a. deer ticks) spread babesiosis and Lyme disease; American dog ticks and brown dog ticks can give you Rocky Mountain spotted fever; and lone star ticks spread ehrlichiosis and rickettsiosis and appear to be the biggest culprits in U.S. cases of AGS. “Lone star ticks are aggressive,” says Platt. “They know you're there and will run toward you.” Fortunately, not every bite results in illness, says Dr. Commins.

Different tick-borne illnesses cause various nonspecific symptoms, such as fever, because the bacteria, viruses and parasites ticks transmit can act on a number of body systems. Lyme disease is a bacterial infection a tick picks up when it bites an infected animal and then passes on to you, and babesiosis is caused by a parasite passed from an infected tick.

AGS, though, is different: The alpha-gal sugar is found in the saliva of some ticks; in many people, a bite from one of these ticks induces an inappropriate immune response that sensitizes their immune systems so the next time they encounter this sugar—in a hamburger, for example—they respond with an allergic reaction to the meat. “Think about it like a pollen allergy that brings on sneezing and other symptoms of hay fever in the spring,” says Nicole Baumgarth, D.V.M., Ph.D.,

director of the Johns Hopkins Lyme and Tickborne Diseases Research and Education Institute. Pollen isn't dangerous, but your immune system treats it as if it were.

Many people with AGS have to avoid not just meat but also a laundry list of products with hidden mammalian ingredients such as gummies, lotions and the blood thinner heparin. Some people even react to airborne exposure from bacon frying and perfume, which can put them on edge. “You need to constantly be on guard against accidental exposure,” says Carrison, who is especially sensitive to scent. “Recovery from a reaction can mean days to weeks of brain fog and other symptoms like diarrhea.” If Nikki's husband eats red meat, the two have to wait several hours before they can kiss.

The FDA recently approved a treatment for food allergies such as AGS, called Xolair. Some sufferers take a daily antihistamine to deal with small exposures and minor symptoms and carry an emergency dose of epinephrine, Dr. Commins says. Even so, for outdoorsy folks like Barb H., tick bites are just an everyday part of the landscape. She was diagnosed with AGS in 2021, after a year of fatigue, diarrhea and bouts of severe nausea. Finally, a body-wide rash sent her to an allergist, who asked if she'd ever been bitten by a tick. “I laughed pretty hard,” she says. A widow in St. Charles County, MO, who tends seven acres, Barb says, “Between the dogs and the



## Tick-Borne Illnesses You May Not Know About

Lyme disease (occurring mostly in the Northeast and upper Midwest) and alpha-gal syndrome are just two tick-borne illnesses. Here's what else to look for:

### **Rickettsiosis (Rocky Mountain spotted fever and spotted fever groups)**

can occur throughout the U.S., with most cases reported in North Carolina, Tennessee, Missouri, Oklahoma and Arkansas. Look for fever, headache, nausea, rash and loss of appetite.

**Ehrlichiosis** is mostly in the Southeastern and South Central U.S.; it can be fatal for kids under 10 and the elderly. Seek help ASAP if you have a severe headache or confusion.

**Babesiosis** is mainly in the Upper Midwest and the Northeast (but spreading south). See an M.D. if a bite leads to fever, chills, sweats or abdominal pain or if you are elderly or have a weakened immune system. It can be life-threatening and symptoms may take time to show up.

LIFE + HEALTH / SUMMER SAFETY

## Protect Yourself Against Ticks

No matter where you live, follow these rules to avoid and handle run-ins with these tiny biting bugs.



**Know where ticks hang out** (grass, wooded areas).



**Wear light-colored clothing** so ticks will be easy to spot, and tuck pants into socks.



**Use a lint roller** on your clothes when you get home to eliminate any hangers-on. Also, immediately throw clothes in the dryer on high for 15 minutes.



**Inspect skin**, especially in armpits, the groin, breasts and folds (warm, moist places where ticks hide). Shower immediately.



**Check dogs**, as they can ferry ticks into your home, Dr. Benjamin says.



**Watch for flu-like symptoms or rashes;** if you visit a place where tick-borne illnesses are a problem and get a bite, tell your doctor right away, says Baumgarth.

horses, I'm always outside." A recent wasp sting reactivated Barb's symptoms and sent her to the ER. Still, she knows she can't give up the outdoors. Instead, she watches her diet and sprays cedarwood oil on herself to keep ticks at bay.

As scary as tick-borne illnesses can be, there is hope. Dr. Commins has patients who have been very sick with AGS who are now adding pork and beef back into their diets. Carrison is in remission. "We really do think alpha-gal syndrome can go away over time," says Dr. Commins.