



Let's Do a Tick Check

By Melinda Wenner Moyer June 11, 2021

These pervasive bloodsuckers can give you more than just Lyme disease. Here's how to protect yourself.

As scores of city dwellers in the United States have ditched their urban lives for more land and bigger homes, many may be facing new foes this spring and summer: bloodsucking ticks.

Ticks, which like wooded, leafy areas where wildlife roam, are most active between April and September. And some evidence suggests that many people who live in tick-infested areas don't take seriously the risks they can pose.

A 2019 survey of nearly 2,000 residents of tick-ridden Connecticut and Maryland, for instance, found that 69 percent of those polled never, rarely or sometimes wore insect repellents and 43 percent never, rarely or sometimes conducted tick checks on themselves. The survey also found that 20 percent of the respondents knew nothing or very little about Lyme disease, a tick-borne bacterial illness that can cause flulike symptoms and a telltale "bull's-eye" rash. Untreated, Lyme can also cause arthritis, heart problems, severe headaches and nerve pain.

Alison Hinckley, an epidemiologist at the bacterial diseases branch at the Centers for Disease Control and Prevention, said that it's important for people to take proper precautions around ticks, since "many of the tick-borne diseases are increasing, and Lyme disease is among them." One C.D.C. study from February estimated that the average number of people diagnosed with Lyme each year in the United States between 2010 and 2018 was 45 percent higher than those diagnosed between 2005 and 2010.

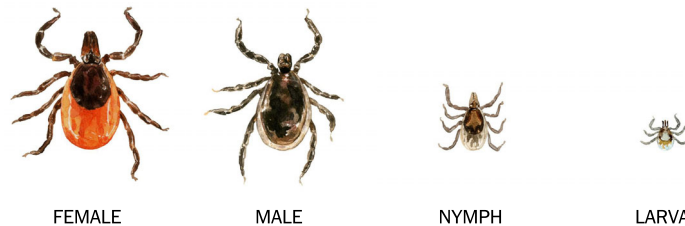
And ticks are not just a problem for those in suburban or wooded areas. They're "becoming urbanized," said Thomas Mather, a public health entomologist at the University of Rhode Island. Ticks may be moving into cities, including some parks in New York City, in part because their animal hosts, like deer, are proliferating in cities too, Dr. Mather said.

The Ticks That Can Make You Sick

Only two types of ticks — blacklegged ticks (sometimes called deer ticks) and Western blacklegged ticks — can transmit Lyme-causing bacteria. But these and other types of ticks can harbor other diseases that can cause illness, so it's important to know how to identify them if you get bitten.

Here are six of the most common ticks you might come across in the United States, including those that are most likely to bite you, and what they look like in three of their life stages: larva, nymph and adult. For most species, adult female ticks are the most likely to feed on humans, but many nymphs can bite and cause illness too.

Blacklegged Tick



Range: Widely spread across the eastern half of the United States. The eastern parts of Texas, Oklahoma, Kansas, Nebraska and the Dakotas make up their western boundary.

Can Cause: Lyme disease, anaplasmosis, ehrlichiosis, babesiosis, *Borrelia miyamotoi* disease (hard tick relapsing fever), Powassan virus disease and Alpha-gal Syndrome (a type of food allergy to red meat).

Notes: These ticks bite most often in the spring, summer and fall, but adults can bite whenever temperatures are above freezing. Nymphs and adult females are most likely to bite humans. The western blacklegged tick, a close relative to the blacklegged tick, is found on the West Coast and in Utah and can also transmit Lyme-causing bacteria, but it is less likely to cause illness in humans. That's in part because Western blacklegged ticks primarily feed on the Western fence lizard, which has a protein in its blood that can kill Lyme bacteria.

Lone Star Tick



FEMALE



MALE



NYMPH



LARVA

Range: Widely spread across the southeastern and eastern regions of the United States, including the eastern half of Texas, Oklahoma, Kansas and the southeastern parts of Nebraska. They can live as far north as Iowa, Illinois, Indiana, Ohio, Pennsylvania, New York and Massachusetts, and even in the southern parts of New Hampshire and Maine.

Can Cause: Ehrlichiosis, tularemia, Heartland virus disease, Bourbon virus disease, Southern tick-associated rash illness and Alpha-gal Syndrome.

Notes: These are aggressive ticks that bite humans. Adult females (which are recognized by a white dot or a “lone star” on the back) and nymphs are most likely to bite. Lone star tick saliva can be irritating and cause redness and discomfort, but that does not necessarily indicate an infection.

American Dog Tick



FEMALE



MALE



NYMPH



LARVA

Range: East of the Rocky Mountains and sometimes in limited areas on the West Coast, like California

Can Cause: Tularemia and Rocky Mountain spotted fever.

Notes: Sometimes called “wood ticks,” American dog ticks — which are larger than blacklegged and lone star ticks — primarily bite in the spring and summer. Adult females are most likely to bite people.

Brown Dog Tick



FEMALE



MALE



NYMPH



LARVA

Range: Throughout the United States and the world.

Can Cause: Rocky Mountain spotted fever.

Notes: All life stages of these ticks primarily bite and infect dogs, but they can rarely infect people.

Gulf Coast Tick



FEMALE



MALE



NYMPH



LARVA

Range: Coastal states along the Atlantic and Gulf Coasts, including the eastern parts of Virginia and North Carolina. They can also live in Oklahoma, Arkansas and even southern Arizona.

Can Cause: *Rickettsia parkeri* rickettsiosis (a form of spotted fever).

Notes: Only the adults feed on humans (as well as on deer and other wildlife).

Rocky Mountain Wood Tick



FEMALE



MALE



NYMPH



LARVA

Range: Rocky Mountain states, as well as Oregon and Washington. They can live as far south as Nevada and the northern edges of Arizona and New Mexico. Montana, Wyoming and Colorado form their eastern boundary.

Can Cause: Tularemia, Rocky Mountain spotted fever and Colorado tick fever.

Notes: Adult ticks mostly feed on large animals, including humans. Larvae and nymphs feed on small rodents.

How to Avoid Ticks

Most tick bites happen between March and September, according to the C.D.C.'s tick bite tracker, and are most common in the Northeast. They like grassy, brushy and wooded areas, and feed on many kinds of animals including mammals, birds, reptiles and amphibians, so if you spend time camping, gardening, hiking or hunting, you could come across them.

When hiking in the woods, stay in the center of the trail. Ticks tend to wait for potential hosts along the edges of well-worn paths, resting on the tops of grasses and shrubs on their back legs while holding their front legs outstretched. When a person brushes by, they can easily climb on. Consider tucking your shirt into your pants, and your pants into your socks, Dr. Mather suggested. Once ticks crawl onto you, they crawl upward, and if your shirt is untucked, they might crawl under it and onto your skin.

Bug sprays approved by the Environmental Protection Agency — like those containing DEET, picaridin or oil of lemon eucalyptus — repel ticks, but some formulations work better than others, or only protect skin for one hour, so you may need to reapply regularly. (The agency has a helpful tool that tells you how long specific products may last.) Ticks can bite any skin that hasn't been sprayed, so it's important to apply bug spray evenly.

Dr. Mather and Dr. Hinckley also recommended treating any clothing and shoes you wear in the woods with permethrin, a pesticide that is safe for humans when it is dry, and is effective at killing ticks on contact.

You can treat clothes yourself, which should last four to six washes, Dr. Mather said; sprayed shoes will last about a month. Or you can get your clothes professionally treated, which will continue to protect you after dozens of washes. Some clothing brands, including L.L. Bean and Insect Shield, also sell permethrin-treated clothing.

The C.D.C. also recommends certain landscaping techniques to make your yard less appealing to ticks: Clear tall grass and brush that is growing around your home and at the edge of your lawn, and keep your lawn mowed and leaves raked. If you have certain nonnative, invasive shrubs in your yard — like Japanese barberry bushes, which are common in the Northeast — consider removing them. According to the Connecticut Agricultural Experiment Station, areas that are dominant in Japanese barberry are reported to attract twice as many blacklegged tick nymphs and adults than those dominated by native shrubs.

You can also treat the wooded edges of your property with pesticides, like bifenthrin or permethrin. Some botanical treatments like red cedar oil are marketed as being safer for you,

your pets and other wildlife. But Dr. Mather cautioned against using them because they don't work. They are "no better than spraying water," he said.

How to Properly Check for Ticks

As soon as you get home after spending time outdoors in a tick-infested area, Dr. Hinckley recommended taking a shower. "This gets you out of the clothes that the ticks are crawling on," she said, and washes off any ticks that may be on your body, but not yet biting you. The C.D.C. recommends throwing the clothes you wore into the dryer on high heat for 10 minutes. This will kill ticks, which are sensitive to arid conditions. (If your clothes are delicate and can't tolerate high heat, one study found that blacklegged ticks were also killed after 11 minutes on low heat.)

Then do a body check. Ticks tend to crawl onto the lower half of the body first (they do not fly, jump or fall from trees), so start by checking your feet and legs (including behind the knees, where ticks often bite), said Dr. Luis Marcos, an infectious disease physician at Stony Brook Medicine. Then check your groin area, back, arms, armpits, neck, ears and even the scalp. Dr. Mather said that while some ticks, like American dog ticks, can crawl through hair and attach anywhere on the scalp, blacklegged ticks, which cause Lyme disease, usually stop at the hairline. But be sure to check the nape of the neck, especially if you have longer hair, he said.

To check body parts that are hard to see, like your back, ask a partner for help or use a mirror. Ticks like to hide in cracks and crevices, and can be incredibly small: Adult ticks are generally the size of a sesame seed, but nymphs can be no larger than a poppy seed.



How to Remove Ticks

If you find an embedded tick, Dr. Hinckley and Dr. Mather recommended removing it with fine-tipped tweezers. "They're very good at grasping really close to the skin," Dr. Hinckley said. Dr. Mather likes TickEase tweezers, which have different tips on each end: One with a thin tip for removing small ticks, and a slotted end for removing larger ones.

With your tweezers, grasp as close to the head of the tick as possible and pull upward with a steady motion. Don't twist or jerk the tick, because that could cause its mouth parts to break off and remain in your skin. If this happens, try to remove as much of the mouth parts as you can with your tweezers without damaging the skin.

Afterward, clean the bite area and tweezers with rubbing alcohol or soap and water, Dr. Hinckley said. You can flush the tick down the toilet or, better yet, drop it in rubbing alcohol or in a sealed Ziploc bag, where it will desiccate and die. It's a good idea to save the tick in case you want to bring it somewhere to be identified or if you later develop symptoms.

Dr. Hinckley warned against the folk remedies of removing ticks with petroleum jelly or lit matches, which can be ineffective and unsafe.

What to Do After You've Been Bitten

If you've been bitten by a tick, it's important to identify the type of tick that bit you and how long it fed for so you can determine your risk for illness.

Dr. Mather's team at the University of Rhode Island runs a website called TickEncounter, which features an array of photos of ticks and how they change as they feed. If you can't identify the tick from photos, another option is to take it to a doctor's office or urgent care clinic, which may be able to identify the tick under a microscope and estimate how long it fed for, Dr. Marcos said. Or you can upload a photo of the tick to TickSpotters, a service run by TickEncounter, in which trained experts will email back an ID within 24 hours.

Studies suggest that it typically takes more than 24 hours — and sometimes up to 72 hours — for an infected blacklegged tick to transmit Lyme-causing bacteria (though there have been exceptions). On the other hand, it may take as little as 15 minutes for a tick to pass along Powassan virus, a rare but severe disease that can cause fever, headache, vomiting and weakness one week to one month after being bitten.

Some laboratories provide tick identification and testing services to determine if a tick was carrying any pathogens. But tick testing can have downsides, Dr. Hinckley warned. Even if a tick tests positive for a disease-causing bug, she said, that doesn't mean that it passed along the infection. Research suggests that only 10 percent of Lyme-infected nymphs transmit the bacteria after feeding for 48 hours (while 70 percent do after 72 hours). Lab tests can also be inaccurate, which could result in unnecessary fear or false assurance.

“Labs that test ticks are not required to meet the same quality standards as labs used by clinics or hospitals for patient care,” she said.

If you were recently bitten by a tick in an area where Lyme disease is present, you can contact your doctor to see if they want to prescribe a prophylactic single dose of antibiotics, which can reduce the risk of Lyme if administered within 72 hours of the bite, Dr. Hinckley said.

How to Keep Pets Safe

Dogs, which spend more time outdoors than most other pets, are highly susceptible to ticks. Dr. Hinckley suggested that dog owners ask their veterinarians about whether their pets might benefit from an annual vaccine for Lyme disease and other tick preventive products. Dr. Mather recommended products that kill ticks before they bite, like Frontline Shield, K9 Advantix II and Vectra 3D.

If you have a dog that spends time outside, regularly check it for ticks and remove any that you find, Dr. Hinckley said. The C.D.C. recommends gently running your fingers through their fur to feel for any small bumps. Check in and around their ears, around their eyelids, under their collar, under their front legs, between their back legs, between their toes and around their tail. Remove ticks using fine-tipped tweezers, gripping the tick as close to the skin’s surface as possible and pulling with a steady, upward motion.

Dogs can easily transfer ticks to their owners, Dr. Marcos said, especially if they are allowed on furniture. “The dog jumps into the bed, and then he drops the ticks there,” he said — so if you have pets that go outside, you might want to reconsider snuggling with them on the sofa or bed.

When to Worry About a Tick Bite

If you’ve been bitten by a tick that could cause illness, monitor for flulike symptoms in the days and weeks following the bite, including for fever, headache, muscle and joint pain, fatigue and gastrointestinal symptoms like nausea, vomiting, diarrhea or abdominal pain. Lyme often, but not always, causes a classic, red, target-shaped rash that can develop three to 30 days after the bite. Southern tick-associated rash illness, Rocky Mountain spotted fever, ehrlichiosis and tularemia can also cause rashes.

If you develop any of these symptoms, contact a health care provider, who might prescribe antibiotics or give you a Lyme test. (Though because Lyme tests detect the presence of antibodies, which can take several weeks to develop, they may not come back positive when symptoms first appear, Dr. Marcos said.)

Many people who contract Lyme never noticed a tick bite, in part because ticks quietly fall off when they are done feeding. If you live in an endemic area and it's spring or summer, Dr. Marcos said, "any patient with a flulike syndrome should be checked for Lyme disease."

—

Melinda Wenner Moyer is the author of a forthcoming book on science-based parenting and writes a free parenting newsletter.

Produced by Jaspal Riyait and Sarah Williamson. Illustrations by Melinda Josie.