



TickTalk

ALPHA-GAL SYNDROME



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- Alpha-gal syndrome (red meat allergy) is an allergic reaction to a sugar molecule found in all mammals.
- Bites from certain ticks, namely the lone star tick in the US, can result in development of this allergy.
- Symptoms appear 2-6 hours after eating meat or dairy products, or after exposure to products containing alpha-gal (for example, gelatin-coated medications) and may include rash, swelling, nausea, and trouble breathing.
- The recovery period varies with some cases spanning years. Currently, there is no treatment for this syndrome. Those with alpha-gal should avoid ingesting red meat and do their best to prevent future tick bites.

ROCKY MOUNTAIN SPOTTED FEVER



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- **Rocky Mountain Spotted Fever (RMSF)** is a bacterial disease spread through the bites of some ticks like the **American dog tick, Rocky Mountain wood tick, and brown dog tick.**
- Symptoms begin within 2 weeks after a tick bite and include **fever, nausea, head and muscle aches and fatigue.** A **red spotted rash** may also develop.
- Risk for developing this disease is greatest in the spring and summer months when these ticks are active. As such, people working or spending significant time outdoors should be at an increased awareness for ticks and prevent bites by wearing long sleeves and pants, closed toe shoes, and using bug repellent.

AMERICAN DOG TICK



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American dog ticks (*Dermacentor variabilis*) are found over most of North America, predominantly along forest edges and in areas with little or no tree cover, such as grassy fields and scrubland, and along trails. These ticks feed on 3 different hosts in their lifecycle, including people and animals such as rodents and livestock. As the name suggests, dogs are a preferred host, but all stages will feed on humans. Nymphs and adults can transmit spotted fever, rickettsioses, and tularemia. American dog ticks can survive up to 2 years at any given life stage if no host is found. Their bodies are typically brown or black with scattered spots of white, gray, or silver. Though most commonly found in the eastern part of North America, they have also been observed in California. They are most active during May and June, but can be seen from April to August.

BLACKLEGGED TICK

aka Deer Tick



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Blacklegged start as eggs in their first year hatching into larvae. In the second year, they become nymphs that molt into adults. They require a bloodmeal from a new host at each stage. They are encountered predominately in deciduous forests, tall grasslands, and shrubs bordering forest edges. Distributed across the Eastern half of the United States, they range from Minnesota to Texas. Their habitat depends on humidity, elevation, temperature, and the presence of their primary reproductive host, the white-tailed deer; however, they can feed on mammals, birds, reptiles, and amphibians. Nymph and adult ticks can transmit Lyme disease, babesiosis, anaplasmosis, ehrlichiosis, and Powassan virus disease. Females are easily distinguished by the orange-red body surrounding their black scutum.

ASIAN LONGHORNED TICK



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The Asian Longhorned Tick (*Haemaphysalis longicornis*) is native to temperate areas of East and Central Asia as well as Pacific islands. The species was not known to be present on the US until 2017, when it was first discovered in New Jersey. It is now found in 17 eastern states and is a rapidly spreading invasive species. It can survive winters, reproduces asexually, and parasitizes birds which carry it rapidly to new environments. Unfed ticks can survive for close to a year, nymphs and adult females the longest. This tick transmits theileriosis to cattle which causes blood loss, death of calves, and decreased milk production. In sheep it decreases wool quantity and quality. Lyme Disease, Rickettsiosis, Ehrlichiosis, and encephalitis virus organisms have been found in these ticks. So far, human pathogens have not been detected in these ticks in the US.

Lone Star Tick

Amblyomma americanum

Adult female



Adult male



Lone star ticks are found in woodlands with dense undergrowth and animal resting areas. The larvae do not carry disease-causing germs but inject allergic saliva; the nymphal and adult stages transmit ehrlichiosis, spotted fever rickettsioses, tularemia, and Southern tick-associated rash illness (STARI). Their bite can cause sensitivity to a carbohydrate on mammalian cells (alpha-gal syndrome). They are aggressive human biters and one of the most abundant and widespread tick species. They are moving rapidly north and west from the southern and eastern states. Adult females have a bright yellow-white dot on their scutums; adult males have white streak mottled scutums.



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Tick-Free Tips



Take these steps to protect yourself from ticks and their bites!



Prevent

- Tuck pant legs into socks
- Stay on trails



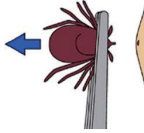
Repel

- Spray clothes with permethrin
- Apply insect repellents to skin



Check

- Shower and check tick hotspots:
Head, neck, arm/
knee pits, belly button, groin



Remove

- Use a set of tweezers
- Grasp close to the skin
- Pull straight out

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Black legged tick

Common in wooded areas. Adults active

Oct.-May



Lone star tick

Common in wooded areas. Adults active

April-Aug.



American dog tick

Common by paths/tall grass. Adults active

April-Aug.

Life size images of adult female ticks

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DANGERS HIDDEN IN PLAIN SIGHT

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Bed Bugs

Cimex lectularius



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Bed bugs (1 to 7 mm in length) spread by crawling between locations or being carried on personal items such as clothing and shoes. They reside in dark, hidden places--mattress seams, furniture crevices, or cracks in floors and walls. They take blood meals at night usually on the arms, legs, feet, face, or neck. They bite by sawing through the skin injecting saliva containing anticoagulants. They are attracted to their hosts by carbon monoxide and warmth. They may live up to 70 days without feeding. Bed bugs are not known to spread disease but may cause itching leading to excessive scratching increasing the chance of a secondary skin infection. Bite responses range from absence of any physical signs, to a small bite mark and swelling, to a serious allergic reaction. Bed bugs are resistant to many pesticides and difficult to eradicate. Control with heat treating.

Black Widow Spider



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The Black Widow spider (*Latrodectus*) is a small spider with an unusually potent venom containing the neurotoxin latrotoxin. Females have unusually large venom glands and their bite can be particularly harmful, but rarely causes death. Only the bites of the females are dangerous to humans usually delivered when unintentionally squeezed or pinched. Female widow spiders are dark brown or a shiny black, typically having a red or orange hourglass on the underside of the abdomen. The males have red or red and white markings on the upper side of the abdomen. They prefer to nest near the ground in dark and undisturbed areas. They often hang upside down near the center of their web awaiting insects to blunder in. Their prey consists of flies, mosquitoes, grasshoppers, beetles, and caterpillars. They are found on every continent of the world except Antarctica.

Brown Recluse Spider



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The Brown Recluse spider (*Loxosceles reclusa*) is one of only three spiders in North America whose bite is medically concerning; the other two are the Black Widow and the Chilean Recluse. It is also called the brown fiddler or violin spider because of the marking on its cephalothorax that looks like a violin with the neck pointing to the rear of the spider. The Brown Recluse usually only inserts its fangs when pressed against the skin such as when putting on clothing or shoes. Most bites do not result in any symptoms, but the toxin can cause pain and itchiness within hours and a skin ulcer which can take many months to heal. Its range is mainly in the midwestern and central southern states. The spider tends to reside in woodpiles, sheds, closets, garages, and cellars that are dry and undisturbed. They feed on crickets, cockroaches, moths, and flies.

Aedes aegypti



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The *Aedes aegypti* mosquito—4 to 7 mm in length—is a dangerous mosquito which spreads the yellow fever, dengue, chikungunya, Zika, and Mayaro viruses. It is a dark mosquito recognized by white markings on its legs and a lyre-shape on the upper surface of its thorax. It is found in tropical, subtropical, and temperate regions throughout the world. Males feed on fruit and only the female bites for blood to mature her eggs, feeding on birds and mammalian hosts. She is attracted to hosts by carbon dioxide, lactic acid, and octenol excretion. Adults have a lifespan of two to four weeks; however, eggs are viable for over a year through winter and dry spells. They feed mostly at dusk and dawn in shady areas. **Prevention efforts include** reducing sources of standing water. Insect repellents (DEET) are effective in preventing bites and the mosquitos are susceptible to permethrin and DDT.

Anopheles Mosquito



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There are about 460 species of Anopheles mosquitos, of which 30 to 40 transmit the Plasmodium parasites which cause malaria. The Anopheles mosquito is considered the most dangerous animal on earth as there are over 240 million cases of malaria and over 600,000 deaths each year. Although malaria is now limited to tropical regions the Anopheles can live in colder climates. The eggs are laid directly on the surface of water with tiny floats, typically hatching within 3 days. Adults may live up to one month. After a blood meal on an infected animal the ingested parasites develop in the mosquito before they are infective to humans. The females need blood for egg development and have largely nocturnal feeding habits. Biting mosquitos can be greatly reduced through the use of insecticide treated bed nets and use of screens and enclosed housing construction.

German Cockroach

Blattella germanica



Among the approximately 70 cockroach species found in the U.S., the German cockroach (*Blattella germanica*) is the most common. It is found worldwide. They transmit pathogens through their feces which along with shed skins contain asthma triggering allergens. The adult is ½ to 5/8 inch long, brown to dark brown in color. They are commonly identified by the two dark parallel stripes on their thorax. They are omnivorous, eating a wide range of foods preferring to live in cracks and crevices looking for food during the dark hours. The major factor limiting their survival is cold temperatures. At temperatures below 59°F they will not develop from nymphs to adults.

American Cockroach



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The American cockroach (*Periplaneta americana*) is the largest cockroach species at around 4 cm in length. It is also one of the fastest insects (over 5 km/hr), hence the sport of cockroach racing. It generally lives in dark, moist areas and prefers high temperatures (over 80o F); it does not tolerate cold temperatures. Despite the name, it is native to Africa and the Middle East, but due to its ability to adapt and travel with human activities it is now found worldwide. Their diet is quite varied feasting on a wide range of organic materials, particularly fermenting foods. Their risk for humans is that they transport pathogenic bacteria, viruses, and parasites from their feet and legs as they crawl across surfaces that people will touch or place food. Also, their feces and body parts in house dusts can trigger allergic reactions and asthma. They are controlled by insecticides and good home hygiene.

Equine Encephalitis



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Eastern equine encephalitis (EEE), western equine encephalitis (WEE) and Venezuelan equine encephalitis (VEE) are caused by Alphaviruses which are transmitted by Aedes, Culex, and Coquillettidia mosquitos. Birds and rodents are the primary reservoirs, but unvaccinated horses are susceptible. These diseases infect humans with EEE being the most common. Only a few cases occur in the United States each year mostly in eastern or Gulf Coast states. Approximately 30% of people with EEE die; survivors have ongoing neurologic problems. There are no vaccines or medicines to treat EEE. Western equine encephalitis occurs infrequently but circulates in wildlife. Venezuelan equine encephalitis occurs in Central and South America. Reduce risk by using insect repellent, long-sleeved shirts and long pants.