

What are ticks?

Ticks are small 8-legged arachnids that live in the woods or in shrubby grassland environments. They are external parasites that live off of blood of other animals including birds and mammals. They aren't choosy about their host and will feed on a person as readily as they will an animal.

Ticks have a 4-stage life cycle: egg, larva, nymph and adult. The larva, nymph and adult are able to attach to and feed from a host. Because they attach and feed, drop off and re-attach to another host, they can pick up and spread diseases.

A tick bite is not painful and may go unnoticed. If the tick happens to be infected, the disease-causing agent is transmitted during the feeding process. It is important to remember that the majority of ticks are not infected.

What kinds of ticks are found in Indiana?

About 15 different species of tick are found in Indiana. Of these, only about 4 species are encountered by people and their pets. These are:

1. The American dog tick, *Dermacentor variabilis*, (below) can carry **Rocky Mountain spotted fever**. This tick occurs in all Indiana counties and is mainly seen from April to July.



2. The Lone Star tick, *Amblyomma americanum*, (below) can transmit **Rocky Mountain spotted fever, ehrlichiosis, and the Alpha GAL Mammalian Meat Allergy (MMA)**. The larval and nymph stages are often

incorrectly referred to as "turkey mites". This tick is very common in southern Indiana and are aggressive biters. They appear in late March through summer, and again in the fall.



3. The Black Legged tick, *Ixodes scapularis*, (below) is one of the smallest ticks and is responsible for the transmission of **Lyme disease**. Different life stages of this tick can be found in Indiana from April through warm days in winter.



4. The Brown dog tick, *Rhipicephalus sanguineus*, mainly spreads diseases to dogs and rarely to humans.

The remaining 11 species are found almost exclusively on wild animals and are only rarely encountered by people.

What diseases can ticks spread?

Many cases of tick-borne disease begin with non-specific flu-like symptoms: fever, headache, chills, and myalgia. Due to the life-threatening nature of these infections, treatment should always begin upon first suspicion of the diseases.

Rocky Mountain Spotted Fever (RMSF)

This disease is caused by the bacterium *Rickettsia rickettsii*. Both the **American dog tick** and the **lone star tick** are responsible for the transmission of Rocky Mountain spotted fever. An average of 6 cases is reported annually in Indiana with most cases occurring in spring or early summer.

An infected tick can spread RMSF after being attached for only 4-6 hours. Major symptoms begin 3-10 days after a tick bite. They include severe headache, fever, chills and muscle aches. One to three days after the fever, a rash usually develops, appearing first on the wrists and ankles, then spreading to the rest of the body (see below).



Rocky Mountain spotted fever rash

When promptly diagnosed, RMSF can be successfully treated with antibiotics. The patient's recollection of a tick bite is often the key factor in diagnosis and treatment.

Lyme Disease

Lyme disease is spread by the **black legged tick** and caused by the bacterial spirochete *Borrelia burgdorferi*. It was first discovered in Lyme, Connecticut in 1975. The first Indiana case was reported in 1983. If not treated early, the spirochete can spread throughout the body, causing debilitating and permanent damage.

In approximately 70% of infected people, a rash will develop within a month at the site of the tick bite. This "bull's eye" rash can range from a few

inches to a foot or more in diameter (see below). It can be either flat or raised.



Lyme disease "bullseye" rash

Regardless of whether a rash appears, other symptoms can occur: fatigue, fever, headache, swollen glands, and stiffness or pain in the muscles, joints and neck. If these early symptoms are not treated with the appropriate antibiotics, the disease can become disseminated. Complications can then involve the heart, nervous system and joints, and can last for years.

Ehrlichiosis

Two types of human ehrlichiosis occur in the Midwest; human monocytic ehrlichiosis (HME) and human granulocytic ehrlichiosis (HGE).

HME is characterized by fever, headache, muscle aches, nausea, vomiting, diarrhea, confusion. It can be serious but is usually not fatal. The first case in Indiana was reported in 1994. Most cases occur in southern Indiana counties where the **lone star tick** is most abundant.

HGE, transmitted by the **blacklegged tick**, produces symptoms similar to those of HME. The first case of HGE was reported in Indiana in 2003. Both types of ehrlichiosis can be treated with antibiotics.

Treatment

Doxycycline is the first line of treatment for adults and children of all ages and should be started immediately upon suspicion of illness.

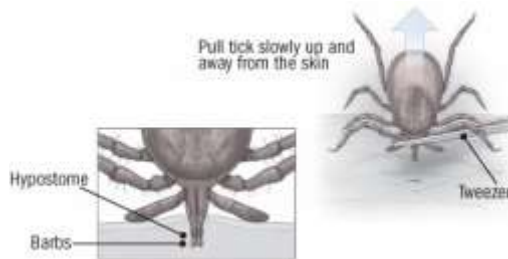
How do I avoid tick bites?

The best way to avoid tick bites is to stay out of infested areas, especially during April, May and June. If this is not possible, follow these recommendations:

1. Wear long pants, socks, and a long-sleeved shirt.
2. Tuck the shirt into the pants, and the pants into the socks.
3. Apply insect repellent to clothing to reduce the incidence of tick bites. Follow label directions.
4. Conduct thorough tick checks immediately after leaving tick-infested areas. Promptly remove any ticks found. Shower or bathe within 2 hours. It may take up to 6 hours for a tick to firmly bite.

What's the best way to remove a tick?

The medically acceptable way to remove an imbedded tick is to grasp it as close to the skin as possible with a pair of tweezers and use an even, upward pulling force. Do not squeeze the tick; that may cause it to regurgitate its bodily fluids into the wound. Do not twist or jerk it; that might tear the head and barbed hypostome from the tick's body and leave them imbedded in the skin. Save removed ticks in a dated, labeled bag in the freezer for at least a month after removal.



For more information, visit www.CDC.gov.

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Ticks and Diseases They Carry



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