












Ticks and Tick-Borne Disease in Washington

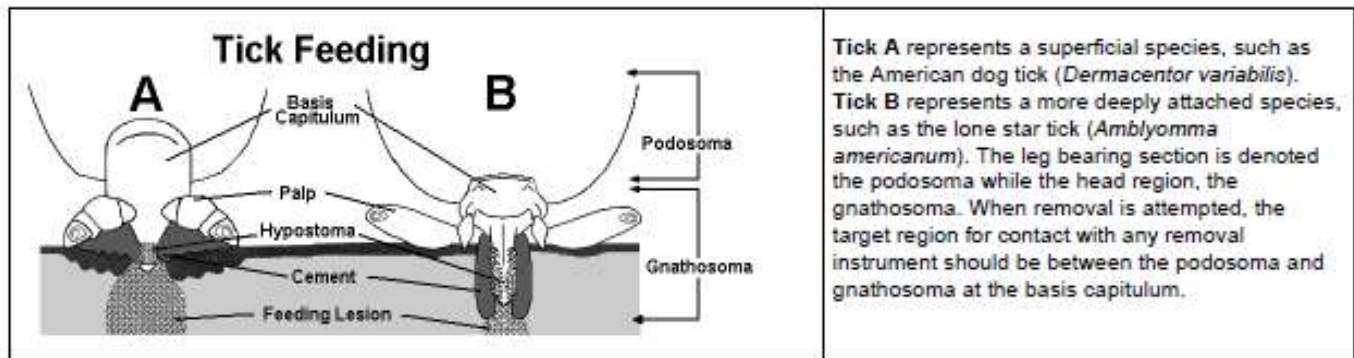
Disease and Initial Symptoms	Tick Genus
<p><u>Rocky Mountain Spotted Fever</u></p> <ul style="list-style-type: none"> • Sudden fever • Headache • Muscle pain • Reddish-to-black rash <p>At least 4-6 hours of attachment and feeding on blood by the tick are required for the rickettsiae to reactivate and become infectious. Incubation 3 to about 14 days. In Washington, one to two cases occur each year.</p>	<p><i>Dermacentor</i></p> 
<p><u>Tick Paralysis</u></p> <ul style="list-style-type: none"> • Fatigue • Unsteady gait • Muscle pain and weakness beginning in the legs and moving upward – ascending paralysis <p>Removing the tick removes the source of the neurotoxin. Recovery is rapid following removal. Six cases of tick paralysis have occurred in the state during 1989 through 2000.</p>	<p><i>Dermacentor</i> and <i>Ixodes</i></p> 
<p><u>Tularemia</u></p> <ul style="list-style-type: none"> • Fever • Headache • Swollen lymph nodes • Skin ulcer near bite <p>Incubation 1-14 days. Usually 3-5 days. In addition to tick bite, transmission can occur from contaminated pelts, meat, or water; inhalation of contaminated dust; and laboratory exposure. Two to four cases of tularemia occur each year in Washington.</p>	<p><i>Dermacentor</i></p> 
<p><u>Babesiosis</u></p> <ul style="list-style-type: none"> • Fever • Chills • Fatigue • Muscle pain • Anemia <p>Incubation variable; 1 to 8 weeks. Recrudescence of symptoms after prolonged asymptomatic parasitemia may occur months to more than a year after initial exposure. Babesiosis is rare; only two cases have ever been reported in Washington.</p>	<p><i>Ixodes</i></p> 
<p><u>Lyme Disease</u></p> <ul style="list-style-type: none"> • Fever • Headache • Stiff neck or neck pain • Fatigue • Slowly expanding "bull's-eye" rash <p>Incubation 3 to 32 days (mean 7-10 days); erythema migrans usually occurs 7 to 10 days after tick bite. Transmission usually does not occur until tick has been attached for 24 hours or more. In Washington, an average of 15 cases occur each year. A Guide for Washington Physicians available at: http://healthlinks.washington.edu/nwcphp/lyme/</p>	<p><i>Ixodes</i></p> 
<p><u>Relapsing Fever</u></p> <ul style="list-style-type: none"> • Sudden fever ($\geq 100.5^{\circ}\text{F}$), chills, headache • Muscle and joint pain • Vomiting and abdominal pain • Febrile periods lasting 2-9 days, afebrile periods lasting 2-4 days. Relapses can number 1-10 or more • Petechial rash common during initial fever <p>Incubation from 5 to 15 days; usually 8 days. Four to eight cases of relapsing fever occur each year in Washington.</p>	<p><i>Ornithodoros</i></p> 

Sources: Washington State Dept. of Health, Zoonotic Disease Program website: <http://www.doh.wa.gov/ehp/ts/zoo.htm>
 American Public Health Association, *Control of Communicable Diseases Manual*, 17th edition, James Chin MD, MPH, Editor, Washington D.C. 2000

Common Ticks of Washington

	<p><i>Dermacentor</i> sp. feed primarily on rodents as sub-adults; as adults they focus on large mammals—deer, humans, canids, and livestock. <i>Dermacentor</i> is the vector of the Rocky Mountain spotted fever rickettsiae, the tularemia bacteria, and the toxin responsible for tick paralysis. Distribution appears to be statewide in Washington.</p>
	<p><i>Ixodes pacificus</i> (Western Black Legged Ticks) feed on small rodents as sub-adults and large mammals—deer, canids, horses, and humans as adults. It is the vector for the Lyme disease spirochete, one form of ehrlichiosis and the babesiosis protozoa. Distribution in Washington appears to be primarily in the western half of the state.</p>
	<p><i>Ornithodoros</i> sp. (soft tick) can survive many years without a blood meal and feeds on its host for a short time similar to a flea. It is the vector for the relapsing fever spirochete and transmits the disease to humans during its feeding. Wild rodents and the tick are reservoirs for the disease. Trans-ovarian transmission results in persistent infection of subsequent generations. Distribution appears to be confined to the eastern part of the state.</p>

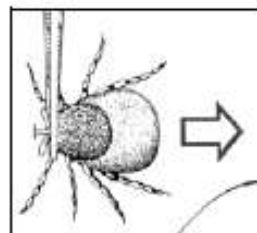
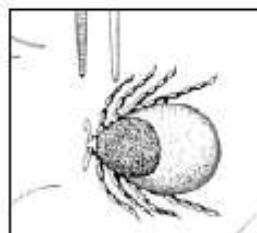
TICK REMOVAL



Tick A represents a superficial species, such as the American dog tick (*Dermacentor variabilis*). Tick B represents a more deeply attached species, such as the lone star tick (*Amblyomma americanum*). The leg bearing section is denoted the podosoma while the head region, the gnathosoma. When removal is attempted, the target region for contact with any removal instrument should be between the podosoma and gnathosoma at the basis capitulum.

The long, central mouthpart (called the hypostome) is inserted in the skin. It is covered with sharp barbs, sometimes making removal difficult and time-consuming. Most ticks secrete a cement-like substance during feeding. This material helps secure their mouthparts firmly in the flesh, further adding to the difficulty of removal. It is important to continue to pull steadily until the tick can be eased out of the skin.

1. Avoid handling ticks with uncovered fingers; use fine-point tweezers or commercial tools designed for removal to grasp the tick at the place of attachment, as close to the skin as possible.
2. With steady slow motion, pull the tick away from the skin or slide the removal device along the skin. Do not jerk, crush, squeeze, twist, or puncture the tick.
3. After removal, place the tick directly into a sealable container.
4. Wash the bite site (and your hands), disinfect the tweezers, and apply antiseptic to the wound.
5. Keep the tick alive for a month in case symptoms of a tick-borne disease develop. Place it in a labeled (date, patient) sealed bag or vial with a lightly moistened paper towel then store at refrigerator temperature.



Sources: Lyme Disease Foundation <http://www.lyme.org/ticks/removal.html>
 Ohio State University Acarology Laboratory <http://www.biosci.ohio-state.edu/~acarolog/tickgone.htm>
 Washington State DOH, Zoonotic Disease Program, *Tickborne Diseases and Tick Surveillance in Washington State*, August 2002
 U. S. Army Center for Health Promotion and Preventive Medicine, Tick Removal <http://chppm-www.apgea.army.mil/ento/TickEduc/Tickremoval.pdf>