

# How long does it take for an infected tick to transmit Lyme disease?

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<http://danielcameronmd.com/long-take-infected-tick-transmit-lyme-disease/>

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[According to the report](#), the probability of a host becoming infected with the Lyme-causing bacteria (*Borrelia burgdorferi*) appears to increase to approximately 10% after a tick has been attached for 48 hours. The risk jumps to 50% after 63-67 hours, 70% by 72 hours and 90% for a complete feed.

While the tick is attached, the spirochete have time to multiply in the gut, escape into the hemocoel and invade and multiply in the salivary glands before transmitting the Lyme bacteria.

Deer tick can transmit multiple types of diseases with risks of transmission increasing with tick attachment time.

The minimum time to transmit Lyme disease has “generated lively debate in the United States,” writes Eisen. “This topic has been addressed in case studies and letters in response to case studies.”

While some mouse studies suggest that a single nymphal tick bite cannot transmit Lyme disease in less than 24 hours, others dispute this finding. Eisen states, “the possibility that transmission of Lyme disease spirochetes could occur within 24 hours of nymphal attachment under unusual circumstances should not be discounted.” And data “provide a strong justification” for ongoing campaigns promoting Lyme disease prevention efforts, such as tick checks and prompt removal of ticks.

## [Partly fed ticks](#)

Not all ticks can be considered the same, however. Some ticks that have bitten a host may have already fed on a previous host. This, in turn, can increase the risk of transmission of *B. burgdorferi* spirochetes. “Partially fed ticks able to re-attach could result from detachment from dead animals or possibly by host grooming,” writes Eisen.

Researchers have shown that infected *I. scapularis* nymph ticks which had been previously attached to a host for 24–48 hours, then removed and placed onto a new host, can effectively transmit *B. burgdorferi* spirochete within 24 hours of their re-attachment, explains Eisen.

## Transmitting other tick-borne diseases

Deer ticks can transmit other diseases, as well. In fact, studies have found that [ticks can harbor up to a dozen different types of bacteria](#). And, some of these pathogens can be transmitted in less than 24 hours. “Experimental studies have shown that [Powassan virus](#) can be transmitted within 15 minutes of tick attachment and both *A. phagocytophilum* and *B. miyamotoi* within the first 24 hours of attachment,”

writes Eisen.

But there are pitfalls in relying on [tick attachment time](#) to determine your risk of infection. “Bites by *I. scapularis* nymphs often go entirely undetected and tick-bite victims typically underestimate how long a nymph was attached before it was detected and removed,” writes Eisen. One study found that people "consistently underestimate the actual time the tick was attached prior to being discovered."

Furthermore, individuals are unaware if they have been bitten by a partly fed tick. If so, their chances of becoming infected increases. And does the infected tick harbor more than just the Lyme bacteria? Is it carrying other tick-borne pathogens? If so, one of these “co-infections” could be transmitted quicker than expected.

### Related Articles:

[The risk of a tick bite for pet owners](#)

[Tick bite prevention methods are failing our children](#)

['One bite, six diseases' - All from the same tick](#)

### References:

1. Eisen L. Pathogen transmission in relation to duration of attachment by *Ixodes scapularis* ticks. *Ticks Tick Borne Dis.* 2018.
2. Piesman J, Maupin GO, Campos EG, Happ CM. Duration of adult female *Ixodes dammini* attachment and transmission of *Borrelia burgdorferi*, with description of a needle aspiration isolation method. *J Infect Dis.* 1991;163(4):895-897.
3. Shih CM, Spielman A. Accelerated transmission of Lyme disease spirochetes by partially fed vector ticks. *J Clin Microbiol.* 1993;31(11):2878-2881.

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