

## Tips on Tick Removal

- Improper removal of ticks greatly increases the risk of getting tick-borne infections.
- Do not burn or use any substance on a tick.
- Do not grasp, squeeze or twist the body of a tick.
- Approach the tick from the side with fine tipped tweezers and grip the tick as close to the skin as possible.
- Pull straight up and make sure to remove the mouth of the tick.
- Use an antiseptic on skin.

It is important to take a picture of the attached tick, and if a rash develops. Place the live tick in a vial with a piece of slightly moistened paper towel. Ticks can be sent to a commercial lab for identification and testing or alternatively, to the local Public Health unit. However, the latter can take up to 3 months for the results.

## Late Stage Lyme disease Symptoms

Fatigue	Confusion
Seizures	Bell's palsy
Memory loss	Difficulty thinking
Mood swings	Blurry vision
Tremors	Numbness
Ringing in the ears	Tingling
Heart palpitations	Joint pain
White matter lesions (MRI)	Poor balance
Night sweats	Brain fog

## Lyme Ontario

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Outdoor Activity  
Should Not Be  
Debilitating:  
Learn About  
Lyme Disease



## Five Fast Facts

- Lyme disease is caused by a spiral-shaped bacterium (spirochete) called *Borrelia burgdorferi* that is typically transmitted to humans with the bite of certain infected ticks.



- Fewer than 50% of Lyme disease patients remember getting a tick bite. \*ILADS
- Lyme disease patients can have other co-infections resulting in a more complex combination of symptoms. Such co-infections can include: Babesiosis, Bartonella, Ehrlichia and Rocky Mountain Spotted Fever.
- Ticks thrive in woods and grassy environments that are moist and shady.
- Early symptoms of infection can include **flu-like symptoms:** fever, headache, fatigue, nausea, sweats, chills, muscle aches, jaw pain, stiff neck, and sore or swollen joints.

## Erythema Migrans (EM)

Less than 42% of those infected will get the well-known 'bull's-eye' (EM) rash. It can vary in shape and size.  
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Pictures: Centre for Disease Control

## Where are Ticks Found?

Migratory birds widely disperse Lyme disease-carrying ticks across Canada and patients do not have to visit an endemic area to contract Lyme disease. Blacklegged ticks also feed on mice, shrews, chipmunks, deer and other mammals, including people and domestic animals.



Tick parasitizing bird over eye.

## Tick Bite Prevention

- When hiking, stay on trails in wooded or grassy areas.
- Wear long pants and long sleeves. Tuck socks into pants. Wear light coloured clothing to see ticks more easily.
- Shower or bathe within 2 hours after coming indoors.

After outdoor activity in a wooded or grassy area, it is important to perform a full-body tick check. Key areas of the body include: behind knees, private areas, belly button, back, behind & in ears, nape of neck, and hair.

## Why is Lyme so hard to Treat?

There are at least 23 subspecies of *B. burgdorferi*, over 100 strains in the USA, and 300 strains worldwide.

Lyme disease bacteria have diverse forms, and can evade the immune system and persist in cells leading to chronic infection.

## What about Testing?

Canadian testing (ELISA screening test) is unreliable. The test misses 35% of culture-proven Lyme disease. Currently, the most reliable test is the Western blot test.