



Lyme disease is caused by a spiral-shaped bacteria, *Borrelia burgdorferi* (Bb), or by newly discovered *Borrelia mayonii*. \* Lyme is usually transmitted by the bite of an infected tick—*Ixodes scapularis* in the East, *Ixodes pacificus* in the West, aka, blacklegged or deer ticks. The longer a tick is attached, the greater risk of disease transmission. Improper removal increases risk of infection. Details:

[www.LymeDiseaseAssociation.org](http://www.LymeDiseaseAssociation.org)

**General Early Signs & Symptoms:** Rash: Only about 9% get the classic bull's eye rash. Others may get another type of EM (Erythema migrans) rash or may get no rash at all. Rash at other than bite site may be disseminated disease. Fever & Flu like illness, muscle aches & pains, joint pain and/or swelling, fatigue, malaise, headache.

**Cardiac/Pulmonary:** Chest pain or rib soreness, shortness of breath, heart palpitations, pulse skips, heart block, valve prolapse, heart murmur.

**Gastrointestinal:** Nausea or vomiting, GERD, change in bowel function (constipation, diarrhea), gastritis, abdominal cramping, irritable bladder or bladder dysfunction, cystitis, newly diagnosed irritable bowel syndrome (IBS).

**Musculoskeletal:** joint/muscle pain in feet; ankle pain; shin splints; joint pain or swelling; joint, neck or back stiffness; migrating muscle pain or cramps; TMJ; neck creaks & cracks.

**Neurological:** muscle twitching; headache; tingling; numbness, burning or stabbing sensations; facial paralysis (Bell's palsy); dizziness; poor balance; increased motion sickness; wooziness; light-headedness; difficulty walking; tremor; confusion; difficulty thinking/concentrating/ reading; forgetfulness; poor short term memory; disorientation (getting lost, going to wrong place); speech, difficulty; double or blurry vision; eye pain; blindness; increased floaters; increased sensitivity to light or sound; buzzing or ringing in ears; ear pain; decreased hearing; seizure activity; white matter lesions in brain; low blood pressure.

**Neuropsychiatric:** mood swings, violent outbursts, irritability, depression, disturbed sleep (too much or too little, early awakening), personality changes, obsessive compulsive disorder (OCD), paranoia, panic anxiety attack, hallucinations.

**Reproductive:** Testicular pain or pelvic pain, menstrual irregularity, milk production, (lactation), sexual dysfunction, loss of libido.

**Other:** Unexplained fevers (off & on), chills, sweats, weight change (loss or gain), fatigue, tiredness, hair loss, swollen glands, sore throat, difficulty swallowing, swelling around the eyes.

**\*NOTE: If Lyme from *B. mayonii*:** early symptoms fever, headaches, rash, neck pain; later arthritis. May include nausea & vomiting, higher concentrations of bacteria in blood.

*This material is presented to provide practical & useful information on the subject matter covered. It is being presented with the understanding that LDA is not engaged in rendering medical or other professional services. If medical or other expert assistance is required, the services of a licensed physician should be sought. If you chose to use preventive products on yourself or your pets, carefully read and follow your medical professional and manufactures' suggestions.*

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