

# Lyme Disease

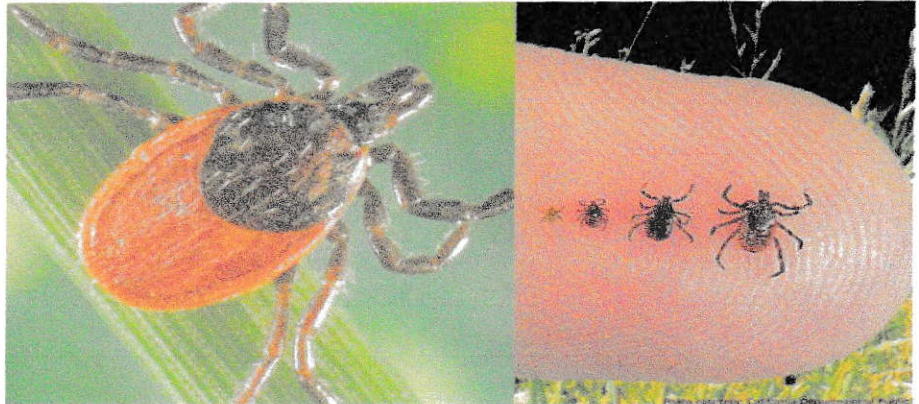
(MSIDS: Multiple System Infections Disease Syndrome)

Lyme disease is the fastest-growing vector-borne (tick-spread) disease in the United States today, tripling in just the last 15 years. There are five subspecies of *Borrelia burgdorferi*, over 100 strains in the US and over 300 strains worldwide. *Borrelia* is a spiral-shaped bacteria called a spirochete. The only other spirochete known to infect humans is *Treponema*, commonly known as syphilis. Lyme-causing *Borrelia* has been proven to be pleomorphic, changing shape or size in response to environmental conditions. It can change from the infectious spiral shape rolling into a protective ball, and given enough time, co-exist with multiple other organisms in aggregations called biofilm. Once environmental conditions return to optimal, *Borrelia* bacteria can revert back to a typical spiral shape.

Lyme spirochetes love electrical tissue and collagen, so we find them clustering in brain and nerve tissue, forming cysts and biofilms in organs such as liver, kidney, bladder, breast, uterus and spleen, as well as drilling into tendons and joint spaces. Like yeast, cancer and parasites, Lyme *Borrelia* feed off glucose to grow and thrive. Lyme steals oxygen and glucose from the mitochondria (the powerhouse of our cells), so fatigue and mitochondrial dysfunction are the most common complaints of people suffering from Lyme, along with sleep disturbance and depression.

Lyme has been called "the great imitator." Lyme disease and its co-infections mimic over 300 other diseases, fooling doctors into treating patients for conditions as widely varying as:

Neuropathy / Parasthesia (migratory)  
Fibromyalgia, neck pain  
M.S. (multiple sclerosis)  
S.L.E. (Lupus)  
C.F.S. (chronic fatigue syndrome)  
A.L.S. (Lou Gehrig's disease)  
Mood disorders (anxiety, depression)  
Gastro-intestinal diseases  
Yeast overgrowth  
Adrenal dysfunction  
Headaches  
Sleep disturbances  
A.N.S. dysfunction (autonomic nervous system)  
P.O.T.S. (postural orthostatic tachycardia syndrome)



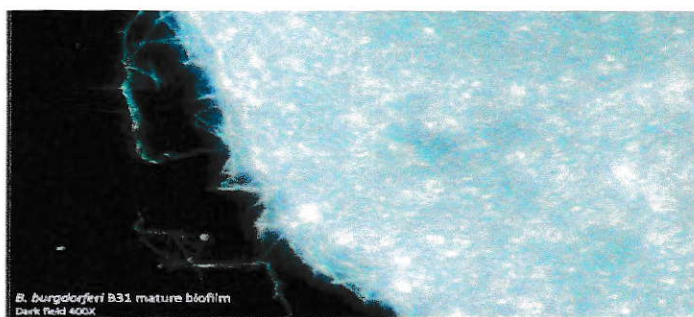
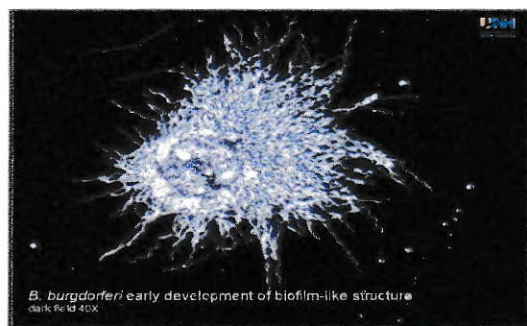
Controversy over diagnosis of Lyme has been going on for decades, because when an infectious tick bites someone, symptoms and labs that should allow a doctor to make a diagnosis are horribly inconsistent. A "bull's-eye rash" (erythema migrans) is one diagnostic symptom, but occurs in only 19 - 40% of patients who contract Lyme. At present, a two-tiered system of ELISA-Western Blot blood testing misses over half of Lyme cases, especially when they do not have a bull's-eye rash. A whole society of physicians I.D.S.A (Infectious Disease Society of America) has denied that Lyme can exist as a chronic illness following antibiotic therapy. In turn, insurance companies have denied claims to pay for treatment of what has historically been called chronic Lyme, or what the I.L.A.D.S (International Lyme and Associated Disease Society) has begun to call P.T.L.D.S. (post-treatment Lyme disease syndrome). In one study, 61% of patients suffered for more than 2 years before receiving a Lyme diagnosis. Because patients have to pay for everything themselves, a study of 100 patients

found that the annual financial impact of Lyme disease averaged \$53,000 per patient. Despite this controversy, over 230 peer-reviewed studies show evidence of persistent /chronic Lyme disease.

**Borrelia** species is one of many organisms carried by ticks. Others include:

- **Bartonella:** a group of 22 bacteria transmitted by ticks, sandflies, lice and fleas; the cause of “cat-scratch fever.” reportedly the co-infection that drives inflammatory symptoms.
- **Bebesia:** an intracellular parasite that infects red blood cells, like malaria.
- **Ehrlichia:** a bacteria that infects white blood cells, causing “Ehrlichiosis.”
- **Anaplasma:** Rickettsial-like bacteria that cause “Anaplasmosis.”
- **Spotted Fever Rickettsiosis:** a group of bacteria that cause diseases such as Rocky Mountain Spotted Fever.
- **Tularemia:** a bacteria that causes “rabbit fever.”
- **Powassan:** a virus that can cause deadly encephalitis within 15 minutes.

Lyme *Borrelia* can resist standard antibiotic therapy by surviving inside a biofilm that, like a city, has its own stores of nutrients, communication channels, and waste removal systems. These biofilms often contain multiple organisms, most frequently found with *Mycoplasma* and/or *Chlamydia* bacteria, *Candida* yeast, one or more of the other tick-borne microbes, stores of calcium, iron, glucose, and surrounded by a slimy layer of alginate.



(Photos credit to Dr. Eva Sapi and her team at University of New Haven: *Borrelia* as a 7-day protective ball, and several-week-old biofilm.)

The same biofilm that makes Lyme resistant to many antibiotic therapies and hard to detect on blood tests, also makes it hard for the immune system to eradicate. It is estimated that 40% of Lyme patients end up with long term health problems, often because of the futile, war-like attacks of a person's own immune system against the walled cities of Lyme biofilm. PCR analysis of preserved brain biopsies from Harvard-affiliated McLean Hospital's data bank of patients with confirmed Alzheimer's disease showed that 7 of 10 of these patients had the DNA of *Borrelia burgdorferi* in brain lesions. This is where physicians like Richard Horowitz, M.D., have come up with the term M.S.I.D.S. (multiple system infections disease syndrome). M.C.A.S. (mast cell activation syndrome) is an emerging description for the inflammatory “fire” in the body when cytokines of the immune system are produced for long periods of time to battle a hidden enemy walled inside, along with other allergic and inflammatory conditions.

Dr. Justin Pollack is a Lyme-literate naturopathic doctor, who takes a holistic approach to Lyme disease and the complicated co-infections that often accompany it. He can order tests of inflammation and immune activity that show the body is dealing with a microbial infection or autoimmune disease, along with the two-tiered tests of ELISA-Western Blot. Dr. Pollack also has more sensitive immunoglobulin PCR tests ready for patients who want them, even though they are not covered by insurance. In the State of Colorado, naturopathic doctors do not have prescriptive rights for antibiotics, but many of the natural remedies carried at our apothecary have been studied to be as effective as prescription drug therapies for the multi-pronged approach necessary for persistent Lyme. Targeting the microbes, disrupting biofilm to allow anti-microbial agents to actually work, reducing inflammation, and restoring the body's own defenses are the steps that Dr. Pollack takes to restore normalcy to the lives of his patient's with Lyme, MSIDS, MCAS, and other chronic diseases. While researchers, clinicians, patients and support teams, government and industry search for a cure for persistent Lyme, we are here for those in need with compassionate, evidence-based testing, care and natural therapies.