

# The Lyme Disease Labyrinth

Lyme disease is one of the most insidious diseases in existence today. Not only is it difficult to diagnose, but, if one doesn't receive the appropriate medical treatment at the time of initial infection, it can become a much more complex, chronic and potentially deadly disease later on.

So, what is Lyme Disease? It is a condition caused by infection from a deer tick. Although records date the disease back to 1883, it wasn't until 1975 that it got its name - after an outbreak of juvenile arthritis in Old Lyme, CT. Later, in 1982 Dr. Burgdorfer identified the bacterium that causes Lyme Disease. The causative organism was named *Borrelia burgdorferi* (after its discoverer) and comes in three forms: spirochete, cyst and cell-wall-deficient.

When a tick feeds on a human, it injects the bacterium *Borrelia burgdorferi* into the skin, and over time Lyme disease can begin to develop if the initial infection is not cleared from the body. The initial stage of infection (called erythema migrans) lasts for up to three weeks, where the spirochetes are more localized at the infection site, causing a bull's eye rash in about 75% of those bitten. If you can be treated effectively by your Doctor during this initial stage, then you can prevent Lyme Disease from developing later. If left untreated when the B.b. enters the bloodstream the immune resistant bacteria can slowly infect all areas of the body - especially the joints, heart, brain, nervous system and eyes. The *Borrelia* spirochetes are brilliant survivors, as the tick's saliva contains a protein plasmin which coats the spirochetes, allowing them to effectively hide from our immune system.

Despite B.b.'s antibody production, this protein plasmin confounds the immune system's efforts to search and destroy it. This avoidance of detection involves alterations in the bacteria's surface protein, which effectively avoids detection by the immune

system due to its ability to change the proteins on its outer cell wall. Additionally, the bacteria may take up a position in the body's extracellular matrix that makes it difficult to reach by the immune system.

Over time various symptoms will present themselves (usually after damage has begun), such as joint pain, fatigue, swollen lymph nodes, neck stiffness, cardiac irregularities, memory loss, depression and others.

The causative agent of Lyme Disease (*Borrelia burgdorferi*) has been found in the brains of many victims of Multiple Sclerosis, as well as many Alzheimer's patients. It has also been found in the blood of Systemic Scleroderma patients. Other disorders that have presented themselves in people who have the later stage of B.b. infection include meningitis, encephalitis, schizophrenia, bipolar disorder, fibromyalgia, chronic fatigue syndrome and arthritis, as well as symptoms of dizziness, severe headaches, brain fog, confusion, neck stiffness, cardiac irregularities and arrhythmia, anxiety, panic attacks, memory loss, poor concentration and numbness.

It is important to note also that the *Borrelia burgdorferi* bacterium is often accompanied by co-infections, which include Babesia parasite, Bartonella bacteria and Anaplasmosis infections. Co-infections complicate the diagnosis and treatment of borreliosis, and require treatments for controlling infections in the appropriate sequence. Because there is a great deal of symptom overlap, it is often difficult to tell which infectious agents are causing which symptoms. This is why it can be difficult to diagnose and treat, unless your practitioner is well versed in this complicated disease. ♦