

Lyme Disease and Mental Health

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August 17, 2018

Ah! The joys of summer – sun, vacation, bike riding, swimming, and hiking. All good things for our mental health. Generally. The thing is that lots of animals love this time of year, including ticks.



[Photo Credit](#)

*And where there are ticks, there is Lyme Disease. The black-legged tick is the only organism that can transmit *Borrelia burgdorferi* between animals or between animals and humans. Carried by a range of hosts, the black-legged tick is about the size of a poppy seed. If it is infected with *Borrelia burgdorferi*, its bite can have profound health implications. Small tick; big bite.*

1. What is Lyme Disease? With more than 300,000 cases diagnosed each year, Lyme Disease is the most common tick-borne illness in the United States. Caused by the bacteria, *Borrelia burgdorferi*, the early signs and symptoms of Lyme Disease include fever, chills, headache, fatigue, muscle and joint pain, and swollen lymph nodes. People often think they have the flu. One of the best indicators that the problem is Lyme Disease is the distinctive rash that is caused by the tick bite. Sometimes the rash looks like a “bull’s eye” but most of the time, the rash is simply a red circle. Left untreated, or in its chronic state, Lyme Disease includes symptoms of fatigue, restless sleep, aching joints or muscles, pain or swelling in joints, decreased short-term memory or ability to concentrate, and speech problems.

2. What does this have to do with mental health? More than you might think. While the media and the public health community focus on many of the health consequences of Lyme Disease, less attention has been paid to the mental health consequences that can coincide with Lyme Disease. [It is often the case that infectious diseases associated with epidemics \(e.g., Zika and Ebola\) are associated with significant mental health sequelae.](#) It is also often the case that mental health symptoms are overlooked. Both are true for Lyme Disease, but increasingly significant cognitive and psychological symptoms are being recognized as part of the symptom pattern associated with untreated and/or chronic Lyme Disease.

3. I’m depressed because a tick bit me? [Depression has been reported in 8-45% of patients with post-](#)

[treatment Lyme symptoms](#). But these numbers don't tell the whole story. Many researchers believe that Lyme disease is vastly under-diagnosed. Diagnostic tests lack sensitivity, and the symptoms of Lyme disease often overlap with other disorders. Thus, the true prevalence of depression in those affected by untreated or undiagnosed Lyme disease may be much higher. [And although better statistics are needed, Lyme Disease may be so debilitating in some cases that it is associated with increased risk for suicidality](#). The mental health implications may extend beyond depression and even suicide. [Case studies suggest that Lyme Disease can be associated with symptoms common to schizophrenia and bipolar disorder, including paranoia, delusions, olfactory, auditory and visual hallucinations, catatonia, and mania](#).

4. It's all in your head. Inflammatory reactions and autoimmune symptoms in Lyme disease decrease serotonin and other chemicals that protect brain cells. Inflammation also increases neurotoxins, which might contribute to the neurological and cognitive deficits seen in patients with tick-borne infections. Damage to the hippocampal region of the brain due to the neurotoxins has been associated with depression and dementia. [Taken together, there are multiple indications that this tick-borne disease has far-reaching neuropsychiatric implications](#).

5. Conquering Lyme Disease: Science Bridges the Great Divide. Drs. Brian A. Fallon and Jennifer Sotsky are Columbia Department of Psychiatry Faculty who are pioneering research and treatment for Lyme Disease. In their recent book, [Conquering Lyme Disease](#), they provide up-to-the-minute science in their comprehensive overview of the biological basis of Lyme Disease and its mental health impact. Most importantly, they provide expert recommendations regarding current and emerging diagnostic tests, treatments, and prevention strategies. As experts, Fallon and Sotsky convey tremendous hope and confidence that we are on the cusp of more successfully treating and reversing this debilitating plague.

Takeaway for me? Let's enjoy bike riding, swimming, and hiking and lots of outdoor fun. Let's follow the preventative measures for Lyme Disease recommended by Fallon and Sotsky and other experts in the field. And let's remember, that even if it is "all in our heads," the origins mental health conditions vary widely - and can even start with the bite of a tick the size of a poppy seed.