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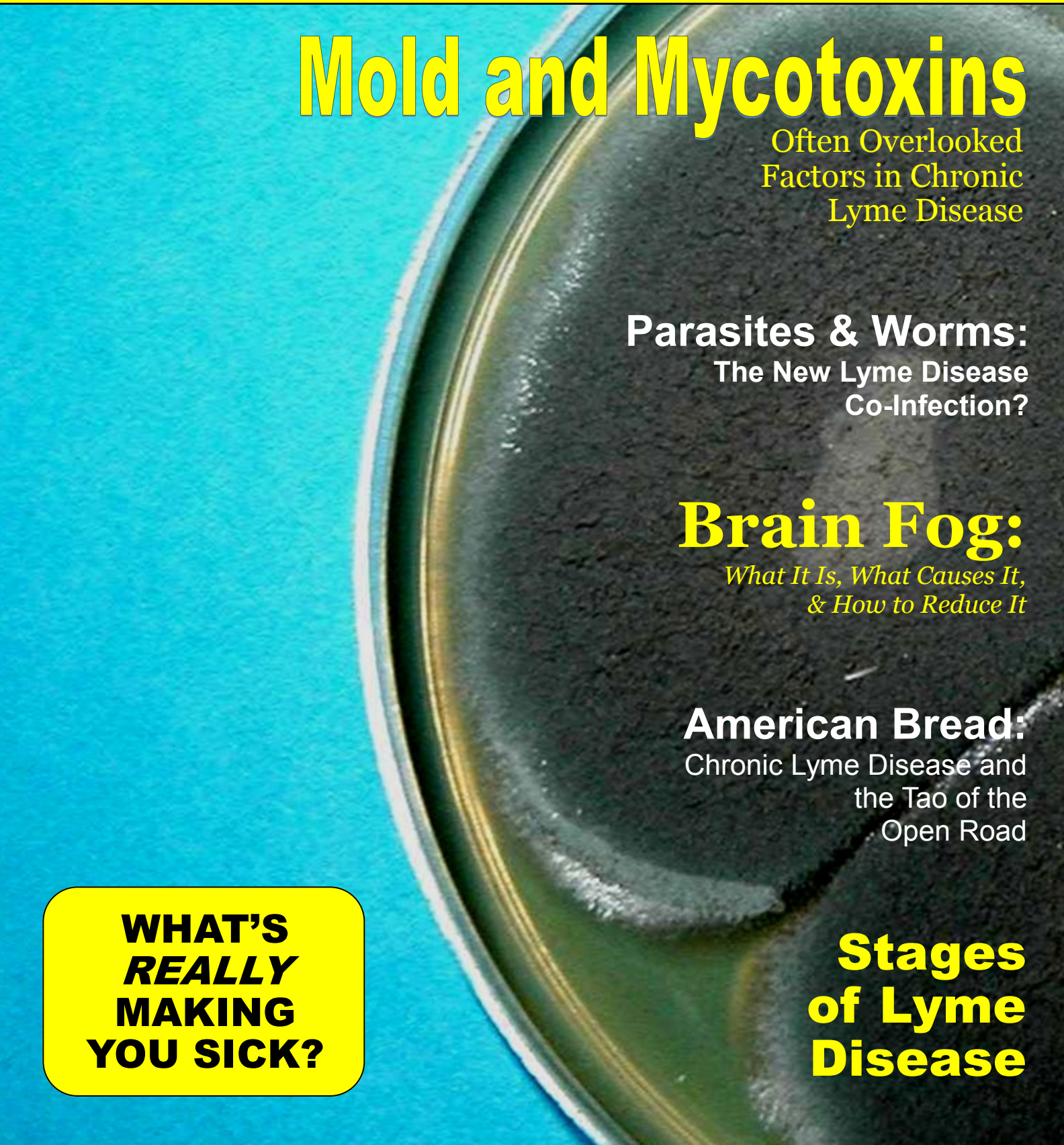
Public Health Alert

The Latest On Chronic Illness

Nov./Dec. 2014



Mold and Mycotoxins

Often Overlooked Factors in Chronic Lyme Disease

Parasites & Worms:

The New Lyme Disease Co-Infection?

Brain Fog:

What It Is, What Causes It, & How to Reduce It

American Bread:

Chronic Lyme Disease and the Tao of the Open Road

WHAT'S *REALLY* MAKING YOU SICK?

Stages of Lyme Disease

ABOUT THE AUTHOR:

Bryan Rosner is an author, researcher, and Lyme disease survivor. Although he is not a medical doctor, he has dedicated thousands of hours to researching Lyme disease and has corresponded with Lyme disease experts across the globe. He is best known for his two books, *The Top 10 Lyme Disease Treatments* and *Lyme Disease and Rife Machines*. He is also the co-author of The Lyme-Autism Connection.

In 2003, Bryan Rosner founded BioMed Publishing Group (www.LymeBook.com), the company which now publishes his books as well as the books of several respected doctors and health care journalists.

BIOMED PUBLISHING GROUP
www.FreedomFromLyme.com
www.LymeBook.com

FREEDOM FROM LYME DISEASE

Bestselling author Bryan Rosner is back with this information-packed sequel to his 2007 book, *The Top 10 Lyme Disease Treatments*. That book, which sold over 15,000 copies, established a foundational treatment plan for Lyme disease based on Rosner's extensive research and personal experience. Now, Rosner's newest book, *Freedom From Lyme Disease*, builds on the principles set forth in the earlier book.

Rosner wrote *Freedom From Lyme Disease* because he observed what he describes as a tipping point in new Lyme disease information and treatment strategies. The tipping point came in 2013, at which time Rosner began working on the new book. Rosner describes this tipping point as a milestone in which there was a fundamental change in how Lyme disease should be approached and treated. *Freedom from Lyme Disease* contains newly discovered treatment modalities and strategies that have the potential to greatly shorten the duration of recovery from Lyme disease.

Rosner believes that *Freedom from Lyme Disease* is the most important book he's ever written, as it ties together many of the concepts introduced in his previous books.

What sets Rosner's writing apart from other Lyme disease books is that he focuses not just on describing available treatments, but also on how to coordinate and weave these treatments into a customized, individualized treatment plan. He refers to this flexible and unique treatment plan as the "treatment template." While many available books offer information on cutting-edge treatments, few provide guidance on how those treatments should be used in the broader context of a complex and individualized treatment protocol.

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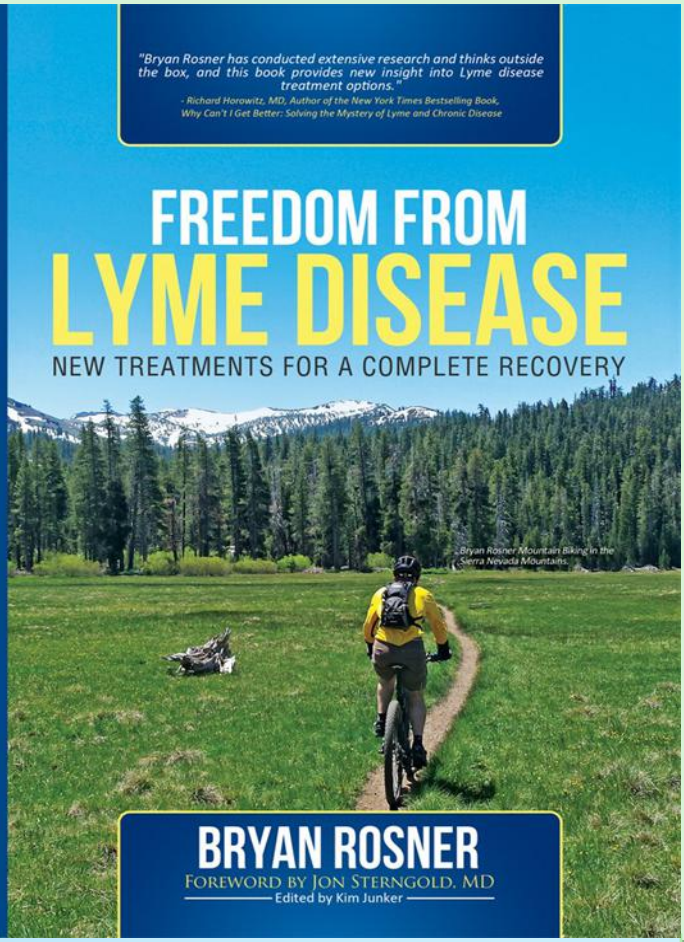
FREEDOM FROM LYME DISEASE
NEW TREATMENTS FOR A COMPLETE RECOVERY
BRYAN ROSNER



- **438 Pages of new information from Bryan Rosner's last 8 years of research.**
- **A flexible treatment template which can be adapted to your unique needs.**
- **Over 50 new treatments and protocols.**
- **Broad lifestyle coverage including diet, adrenal fatigue, emotional health, exercise, and more.**
- **New data on stealth infections which embed with Borrelia and delay recovery.**
- **Hormone imbalances.**
- **Various novel approaches to the common problems Lyme sufferers face.**
- **Updates on Rife Therapy.**
- **New pharmaceutical options which have been reported to catapult Lyme sufferers to new levels of health.**

Praise for Bryan Rosner's book from RICHARD HOROWITZ, MD:

"Bryan Rosner has conducted extensive research and thinks outside the box, and this book provides new insight into Lyme disease treatment options."

—Richard Horowitz, MD, Author of the New York Times Bestselling Book, Why Can't I Get Better?: Solving the Mystery of Lyme and Chronic Disease. Dr. Horowitz has treated over 12,000 Lyme Disease patients.

In this issue

From the Editor

The holidays are upon us, a realization prompting the same thought I always get around this time of year: "...yet another Thanksgiving, Christmas, and New Years Eve with Lyme..." After that thought entered my mind, a more logical one followed close behind, exclaiming how foolish I was being. I realized instead of having that thought, I should be thinking how lucky I am to be able to spend yet another Thanksgiving, Christmas, and New Years Eve with my family. Next, the stark reality that my thinking patterns had become inextricably inter-connected with the identity of "a person with Lyme disease" sunk in. Somewhere along the way I lost touch with my true nature and subconsciously clung to the role of "Lyme victim." How on earth can anyone heal when in such an unhealthy state of mind? Eckhart Tolle said it best in his book "Practicing the Power of Now" when he said:

"Once the pain-body has taken you over, you want more pain. You become a victim or a perpetrator. You want to inflict pain, or you want to suffer pain, or both. There isn't really much difference between the two. You are not conscious of this, of course, and will vehemently claim that you do not want pain. But look closely and you will find that your thinking and behavior are designed to keep the pain going, for yourself and others. If you were truly conscious of it, the pattern would dissolve, for to want more pain is insanity, and nobody is consciously insane."

Of course, my pride begged me to deny the validity these words held for me. Who wants to admit to amplifying their own suffering? That reading the above words by Eckhart Tolle sparked a resistance within served as a clear indicator that my ego was controlling me, for the ego always responds with resistance when its survival is threatened by the light of consciousness. Instead of waiting for the New Year to make a resolution, I am starting now. Here, in this very moment, I am consciously deciding to place an effort towards observing my thinking patterns, in order to identify and eliminate those which are counterproductive to healing -and all I can really do is continue to make that decision in the here and now, moment after moment. I cannot make it in the past or the future, for they do not exist, only the present moment does. So, I hope you will join me. I hope you too will decide to be here now.

Shelley M. White
EDITOR IN CHIEF
EDITOR@PUBLICHEALTHALERT.ORG

Contributors

Dr. Tim Jackson

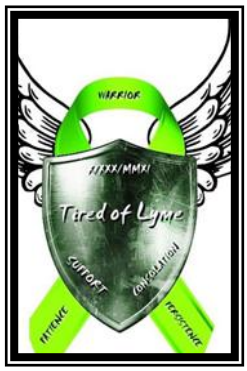
"What's REALLY Making you sick>" page 6

Dr. Tim Jackson works with neuro-immune illnesses, Lyme, co-infections, Autism, environmental toxicity & more.
www.healyourbody.org

Michelle McKeon

"Stages of Lyme Disease," page 11

Michelle is a wellness coach, author, & educator specializing in detoxification, colon hygiene, nutrition, hyperthermia & herbalism
lymeandcancerservices.com



Tired of Lyme

"Lyme Disease Brain Fog: What It Is, What Causes It, & How to Reduce It," page 16

Tired of Lyme is a site offering support, consolation, & education for those enduring Lyme.

Bryan Rosner

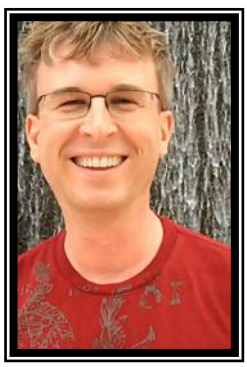
"Parasites & Worms: The New Lyme Disease Co-Infection?," page 20

Bryan Rosner is the author of 4 books on Lyme disease treatment. Bryan lives in Northern CA with his wife and three children.

Nick Vittas

"American Bread: Chronic Lyme Disease and the Tao of the Open Road," page 35

Nick Vittas is an author who has been published by Sunstone Press, The Whistling Fire, and Kaleidoscope Magazine.



Scott Forsgren

"Mold and Mycotoxins: Often Overlooked Factors in Chronic Lyme Disease, page 40

Scott is a health writer, advocate, and coach. He is the founder of BetterHealthGuy.com, where he shares his 17 year journey through the world of Lyme and the myriad of factors that it often entails. He has written for *Public Health Alert, Explore!, Bolen Report,* and *Townsend Letter.*

Neil Nathan MD

"Mold and Mycotoxins: Often Overlooked Factors in Chronic Lyme Disease, page 40

Neil is a doctor at Gordon Medical Associates in Santa Rosa, CA, He specializes in Lyme , CFS, Fibromyalgia, thyroid conditions, chronic illness, chronic pain, and autism.
www.neilnathanmd.com
www.gordonmedical.com

Wayne Anderson MD

"Mold and Mycotoxins: Often Overlooked Factors in Chronic Lyme Disease, page 40

Wayne is a doctor at Gordon Medical Associates in Santa Rosa, CA. He integrates mind and body patient care with alternative and conventional medicine.
www.wayneanderson.com
www.gordonmedical.com.

12 CONDITIONS FOR OPTIMAL HEALTH

What's REALLY Making you Sick?

by Dr. Tim Jackson, DPT

Strengthening your immune system can be quite a task, considering most of us are overloaded with internal and external stressors, exposure to chemical toxins and a slew of other conditions that weaken our ability to fight off disease. Here are 12 steps you can take that will help you optimize your immune system and reach optimal health:

1. Have your home and office checked for mold: *Mold is a rapidly growing epidemic in the U.S., due in part to our desire to create energy efficient homes. While it may help you save on your electric bill, it will cost you more on your health bills. An inadequate exchange between indoor and outdoor air leads to less competition for the indoor molds, allowing them to grow unchecked.* Lax building and HVAC regulations serves to further exacerbate this problem. If you've had water damage to your home or office, the chances that you're experiencing mold-related health problems is even greater. Roughly 25% of the population has a genotype (genetic makeup) that makes it very challenging for their immune system to recognize, bind to and excrete mold toxins. This can lead to immune dysfunction, hormonal imbalances and systemic inflammation.

2. Supplement with Proline-rich polypeptides. Proline-rich polypeptides, or PRP, is derived from colostrum. It serves as a cytokine modulator: if cytokine levels are high, it lowers them; if they are low, it will increase them. Think of it as an adaptogen for the immune system. It helps to decrease thymic involution, or the shrinking of the thymus gland due to aging and/or stress. ★★ This product can be purchased from Neurobiologix using the discount code twj81 for 5% off your purchase. I suggest starting with 4 sprays 2x/ day.

3 Use a far-infrared sauna. A far-IR sauna sends invisible waves deeply into the body and helps to raise our core body temperature. It has also been shown to help with the excretion of environmental toxins. Raising our body temperature helps all of our enzymes work better, in addition to improving immune function. It is hard for pathogens to survive in higher temperature environments. ★★ Begin slowly if you have never used a far-IR sauna before. Starting with 3 weekly sessions of 15-20 minutes each is likely a good idea. You can increase the duration over time. Make sure to stay hydrated.

4. Check your IgG subclasses and correct if deficient. Our bodies have 5 types of immunoglobulins—IgA, IgE, IgD, IgM and IgG. While they are all important for various reasons, deficiencies in some of the IgG subclasses are the most common. There are 4 subclasses. In my experience, deficiencies in subclasses 1 and 3 are likely in those dealing with chronic infections, Autism, cancer and other immune-related disorders. ★★ Oral supplements, such as Ig3x from Neurobiologix (use the discount code twj81) and IgG2000 from Xymogen, can help to raise the IgG subclass levels in many cases. More severe situations may require IVIG, a product pooled from the blood of thousands of people.

5. Optimize your mitochondria. Mitochondria are the batteries of our cells, producing the energy currency known as ATP. All of our tissues require the mitochondria to functional optimally in order to complete normal daily functions. Our mitochondria are very susceptible to damage from inflammation and free radicals. To completely

optimize them, we must control or lower elevated levels of inflammation. Curcumin/ turmeric works well at controlling inflammation. But ultimately we want to find — and eradicate — any sources of inflammation, including gut infections, viral and bacterial infections, blood sugar imbalances, heavy metals and more. The other part to optimizing mitochondrial function is ensuring you have sufficient amounts of carnitine and CoQ10. These two molecules are created through the methylation reactions, so optimizing methylation is a must. You can also supplement with L-carnitine and/or Co-enzyme Q10. ★★ Suggested starting doses for carnitine and CoQ10 are 500 mg and 200 mg, respectively. Carnitine should be taken on an empty stomach.

6. Eat a high-protein diet. Every structure in our body requires protein and its component parts, amino acids. Proper Phase I and Phase II detox in the liver require amino acids, as do the production of our brain chemicals known as neurotransmitters. In addition, an amino acid known as lysine is crucial for proper immune function. ★★ Roughly 1—1 grams of protein per kg of body weight is recommended.

7. Keep a gratitude journal. Studies from the HeartMath Institute have shown that having gratitude helps to raise DHEA and secretory IgA. In addition, it lowers your stress level and helps you to focus on what you do have versus what you do not. Write down what you are grateful for every night before you go to bed. Watch your sleep improve, too!

Gratitude Journals lower your stress levels and help you to focus on what you do have. versus what you do not.

8. Get rid of any sub-clinical dental infections and cavitations. These are things your average dentist will NOT detect, let alone know how to treat. See a biological dentist who can test the bacterial landscape — the biome — of your oral cavity and treat as needed. If you've had your wisdom or any other teeth removed, have X-rays done by a biological dentist who knows how to read them for infections known as cavitations. This can lead to a myriad of health problems, including immune system issues. On a daily basis, you can also use a water pik with some essential oils that help to lower the pathogen count in your mouth. ★★ Using a type of toothpaste called Livionex can also lower oral biofilms that serve to hide the microbes from immune detection.

9. Optimize melatonin levels. Melatonin is a hormone made in the body that helps us sleep. You can have your levels checked via a saliva test. You also want melatonin to peak at the right times, i.e. at night. Large amounts of artificial light at night inhibits melatonin production.

Only use what light is absolutely necessary to navigate your home at night. Turn off lamps, night lights, etc. Use blue-blocker glasses to help decrease the effects of artificial light. Install blackout curtains in your bedroom. Melatonin helps to combat immune senescence, or aging. ★★ You can also supplement with sustained-release melatonin to help with sleep.

10. Lower your nagalase level. Cancer cells and viruses — and possibly some bacteria — produce a substance known as nagalase. Nagalase serves to paralyze our macrophages, a very large type of immune cell that engulfs pathogens and activates the entire immune cascade. How do you lower your nagalase level? GcMAF, aka the vitamin D binding protein, injections help to lower nagalase levels. To date, there have been roughly 160 scientific studies conducted on the use of GcMAF in HIV, cancer, chronic fatigue syndrome, Lyme disease and other conditions. Eight injections is considered one round. ★★ Depending on your signs, symptoms, nagalase level and others, you may need anywhere from 3 to 8 rounds.

11.Take Micellized Vitamin D3.

Micellized vitamin D is absorbed roughly 3X better than regular vitamin D. It helps to bypass any fat absorption issues, which negatively impacts fat-soluble vitamin absorption. Neurobiologix (discount code twj81) sells micellized vitamin D. ★★ Take at least 2,000 I.U.s per day with a meal. Aim to achieve a vitamin D3 level of 60 or higher.

12. Take micellized Vitamin A. Klaire Labs offers a micellized version of vitamin A in the form of retinoic acid. ★★ Take 5,000 I.U.s per day with a meal but away from your vitamin D. Vitamin A helps to raise your level of natural killer cells, an important type of immune cell. In addition, it helps support thyroid function and to seal the tight gap junctions of the intestines. PHA

Mentioned Supplements:

- **5% off Neurobiologix products: Use promo code twj81 at checkout .**
- **Tips for using Dr. Tim's Store:**
  Sign up for an account @ Dr. Tim's store to access referenced products www.dssorders.com.
- **Simplify Ordering: access this article online** www.healyourbody.org/optimizing-your-immune-system-part-2/

HEAL your BODY
with Dr. Tim Jackson, DPT

Dr. Tim Jackson is a DPT (Doctor of Physical Therapy) & Certified Nutrition Specialist (candidate) who works with neuro-immune illnesses, Lyme, co-infections, Rheumatoid Arthritis, Lupus, Parkinson's, Autism, cancer, neuro-developmental issues, environmental toxicity disorders, & more. He practices under the Pastoral Medical Association & has been featured on *The Bulletproof Executive, Ben Greenfield Fitness podcast, Underground Wellness, Paleo Movement Magazine, RobbWolf.com, Super Human Radio, Mamavation, The Healthy Apple, Jack-Kruse.com, AmeerRosic.com, SCDLifestyle.com, Elevate Your Energy Podcast,* & more. He is also a professor for Entheos Optimal Living Academy online.

CONTACT

- drtim072981@gmail.com
- www.healyourbody.org
- www.facebook.com/healyourbody.org

Dr. Jackson analyzes the following:

- Gastro-intestinal Health and Terrain
- Hormonal balance: thyroid, adrenals and sex hormones are all examined in the context of chronic infections
- Neurotransmitter health
- Immune status
- Environmental toxicity: heavy metals, Endocrine-disrupting chemicals, pesticides, etc.
- Epigenetic profile: This involves looking at genetic glitches that may slow down one's ability to detoxify, make certain neurotransmitters and synthesize certain immune cells
- Macronutrient and micronutrient status
- Total microbial burden
- Environmental burden: encompasses EMFs, mold, VOCs, etc.

STAGES OF LYME DISEASE

by Michelle McKeon

Lyme disease occurs in three stages. The stages are known as “Early Localized”, “Early Disseminated”, and “Late Disseminated.” The severity of the symptoms can depend upon where the infection has spread in your body, genetic susceptibility, the strength of your immune system, if the tick that bit you carried any co-infections, and the length of time the infection has been in your body.

Stage one, or “Early Localized Lyme disease, is when the infection has not yet spread throughout the body. Therefore, the earlier it is diagnosed, the easier it is to treat. During the first few weeks of infection, some people develop a “bullseye” rash. The technical name of this rash is erythema migrans, and it occurs at the site of the tick bite. This rash is a sign that the bacteria is multiplying in the bloodstream. It looks like a central red spot surrounded by a clear spot with a red circle at the edge. While this rash is said to be characteristic of Lyme disease, many people instead develop a plain red rash and others don’t develop a rash at all. I, for one, never developed a rash when I became infected.

My initial symptoms were full blown encephalitis. I was completely fine one day, and the next day my entire world had changed. In a matter of moments, it felt like my body was shutting down; I began to feel this immense pressure in my brain; I had trouble performing basic functions like swallowing; my vision and balance became disturbed; as well as my ability to form thoughts. Before I knew it, my co-workers were having me lie down on the cold floor because they thought that I was having a heat stroke. I remember looking up at my boss as the rest of my body became numb and thinking, “this is it. I am dying.”

It wasn't until years later that I learned my initial reaction was the result of a tick bite, and that the tick that bit me not only infected me with Lyme disease but the co-infections Powassan virus, Bartonella, and Protozoa Rhuematica as well. We believe that Powassan virus may have been the cause of the initial encephalitis. Last summer in 2013, there were many cases of people being infected by Powassan virus on the east coast. It was stated that it is fatal in 30% of people infected by this disease. They were calling it the new tick borne infection. However, Powassan virus is by no means a new disease. It is just highly unrecognized. Unfortunately for me, because of the lack of understanding about tick borne illnesses, my symptoms were not being taken seriously. This began my progression into Early and Late Disseminated Lyme disease/ tick borne infections.

There are some cases where a person is only infected by Lyme disease and not other co-infections. For these people the symptoms are a lot less severe. Also, depending upon the person's immune system, their body may be able to tolerate the infection better than others. In these cases, the initial common symptoms are flu-like –fatigue, muscle aches, and headaches.

Stage Two is known as Early Disseminated Lyme disease. It occurs several weeks after the tick bite, as the bacteria is beginning to spread throughout the body. At this point, more serious symptoms may trigger a need for treatment because the infection can affect the skin, joints, nervous system, and heart. Rashes may appear in other parts of your body; there may be pain or numbness in the arms or legs as the joints begin to swell; and your headaches may become more severe and frequent, escalating into bells palsy. It is also very common to have a reduced ability to concentrate, heart palpitations, fainting spells, balance issues, and an inability to tolerate heat, noise, smells, and lights. Meningitis and cardiac disturbances may occur at this time too, as the infection will attack whatever is genetically weak in your system.

During my experience in this stage, the head pressure from the inflammation of my brain increased. The pressure would migrate to different areas of my brain, and at times the pressure felt so heavy that I wouldn't be able to lift my head off my pillow. When I did have to get up, I would have to hold my head with my hand on my chin to relieve some of the pressure. I began to develop intense noise, heat, and light sensitivities; I lost control over my balance and experienced constant vertigo; and my fatigue was like nothing I had experienced before, as I felt like I was a walking zombie. My ears also began to feel very full and were in continual excruciating pain. I remember not even being able to touch the fabric of my shirt to my ears when I put on clothing because it was so sensitive. My ear was constantly bright red and felt like it was burning to the touch. Later, I was diagnosed with 70% nerve damage to my left inner ear, which the doctors told me was due to Labyrinthitis. My neck began to feel increasingly stiff until I lost all control over it. At this time, the doctors told me I had cervical dystonia. Cervical dystonia is a painful movement disorder in which your neck muscles contract involuntarily or can cause your head to tilt forward or backward. To this day, I receive injections every three months to paralyze the muscles from contracting so that I can have more control over my neck.

Throughout each of these stages, as my body continued to shut down, my family and I repeatedly asked if Lyme could be the cause of all of these symptoms. Our answer was always, “no Chronic Lyme does not exist. That is not what you have.” One doctor even smashed his fist on the table and told me that I was not allowed to ask that question again in his office. While this reaction seems absurd, this is a common occurrence for many Lyme suffers searching for answers in a medical community that does not recognize Chronic Lyme disease.

Stage Three is known as Late Disseminated Lyme disease and can occur weeks, months, or even years after the tick bite. It is the last and most serious stage. It consists of people with an active infection of a prolonged duration that have a higher spirochete load, weaker defense mechanisms, greater virulent or resistant strains, are most likely heavily co-infected, and are dealing with a significant amount of neurotoxins.

At this point there can be considerable damage to the joints, nerves, and the brain causing symptoms of muscle paralysis, arthritis, severe cognitive and psychiatric issues, heart problems (such as inflammation of the structures surrounding the heart), disabling fatigue, thyroid issues, neuropathy, and many more issues. Lyme disease can affect any part of your body, which is why it is known as, “The Great Imitator.”

Not only are the symptoms a lot more serious, but patients require a full evaluation for all of these symptoms and each irregularity must be addressed in order to recover. Treatment related problems become a lot more complicated as well. Many people begin to develop antibiotic resistance, colitis, Candida (yeast overgrowth), IV catheter complications, and blood count abnormalities, just to name a few. Treatment modalities also become more extensive. At this late stage, the goal is not only to reduce the pathogenic load in one’s system, but also to treat food sensitivities, heavy metal issues, and mycotoxin accumulation. Individuals should also seek help with cell membrane repair therapies, rehabilitation exercises and programs, nutritional supplements, enforced

“I was becoming entirely controlled by this disease, and I didn’t know how I would ever get out of this nightmare. Even though I didn’t feel like myself, I knew that I was still in there somewhere.”

rest, and stress avoidance. At this stage, people suffering with Lyme disease, will have a very difficult time fully recovering and may have to maintain an open-ended, on-going therapy plan.

When I reached this stage, the disease had completely invaded my brain and I was becoming increasingly more debilitated. Even with over a year of antibiotic treatment for Lyme disease, I was still not seeing any improvements and the infections within me were winning. I was becoming entirely controlled by this disease, and I didn't know how I would ever get out of this nightmare. Even though I didn't feel like myself, I knew that I was still in there somewhere. I was in dire straits and decided to look into an alternative treatment. Shortly after, I underwent Whole-Body Hyperthermia treatment and a very extensive detoxification and cell membrane repair post-treatment protocol. I began to feel more and more like myself as I continued with treatment. For the first time I was improving and the disease was no longer winning.

Before becoming ill, I could have never imagined people suffering the way that I had. Many of my symptoms felt as though they weren't even humanly possible. Until you go through it yourself, no one can really imagine the pain that Lyme sufferers endure. ***Even while I write this, I feel as if it doesn't come close to giving justice to how truly painful and debilitating this disease can be.*** My main goal is to spread the message that you are not alone and that there is hope in moving forward to a path of getting your life back. In the words of Winston Churchill, "Never, ever, ever give up!"

Lyme Disease

Brain Fog

What It Is, What Causes It, & How to Reduce It

by Tired of Lyme, (www.tiredoflyme.com)

Brain fog is a street term given to people with Lyme Disease whose brain functions are not performing in the efficient manner at which a normal person's brain does. This is what usually occurs in the brain of a person with Lyme Disease nearly all the time, and sometimes in higher intensities than others depending on that person's circumstances. Brain fog may also be referred to as cognitive dysfunction. Many things can influence not only if a person experiences brain fog, but how intense they can experience it. This includes not just their normal treatment protocol, but other external factors.

MEMORY LOSS (SHORT & LONG TERM:

Short term memory loss in those with Lyme Disease usually plays out in a manner similar to this: Thinking of something to say, waiting for the person speaking to finish their statement, knowing that you'll be able to recall it in a few seconds, and then when those few seconds are up, being completely unable to find or recall that idea or what you wanted to say. This can be very embarrassing. This cognitive dysfunction can include just finding the right word for expression, or if they're really brazen, telling an entire idea or story.

Memory loss in those with Lyme Disease has been documented to be so bad that a person may forget where they live, where they currently are, who they are, and even how to perform basic functions that don't normally require a conscious effort to remember such as starting a car. This should be second nature, but to a person suffering from severe brain fog, they will actually have to go through the steps in their head in order to determine how it is a car should be started. This procedure can happen with anything a person with Lyme does on a daily basis.

The less severe versions of Lyme induced memory loss include, but aren't limited to, forgetting names, what someone has recently told you, important occasions, and even forgetting the basic things such as placing a fork with the dinner placement. It's also interesting to note that memories from before Lyme happen to be easier to recall than memories made after a person attained Lyme Disease. This could be because of a person's inability to create and store memories during Lyme as well as before they had Lyme.

An interesting phenomenon sometimes occurs in those people with Lyme Disease who experience memory loss. Usually the symptom itself leads them to believe that the great details of their past are gone for good, but their dreams may tell them otherwise. While dreaming, the memories they thought were gone for good, or simply could not be recalled, present and display themselves in a manner reflective of how that person used to be able to recall memories and their details before Lyme. It's as if the person still has all their memories, and they do, but are only able to access them while dreaming

CANNOT RETAIN INFORMATION:

Not only does a person with Lyme disease have great trouble recalling memories from the recent and far past, but many times they're not even able to make any to the extent that not only their brain should capable of, but even to a low degree at which they'd humbly accept given the circumstances. Simple experiences, such as meeting a person for the first time and remembering their name, seem like impossible tasks to do. Even after going through such lengths to be sure that they'll remember a person's name, they're incapable of doing it; their brain simply won't allow them to do so.

Not being able to retain information really hits those in school the hardest. The basic foundation of completing school rests on the notion of being able to remember what you've learned, but not being capable of remembering

some information, if any at all, can be hugely frustrating for academics and usually serves as the main reason why a person with Lyme Disease may drop out of school.

CONCENTRATION DIFFICULTIES:

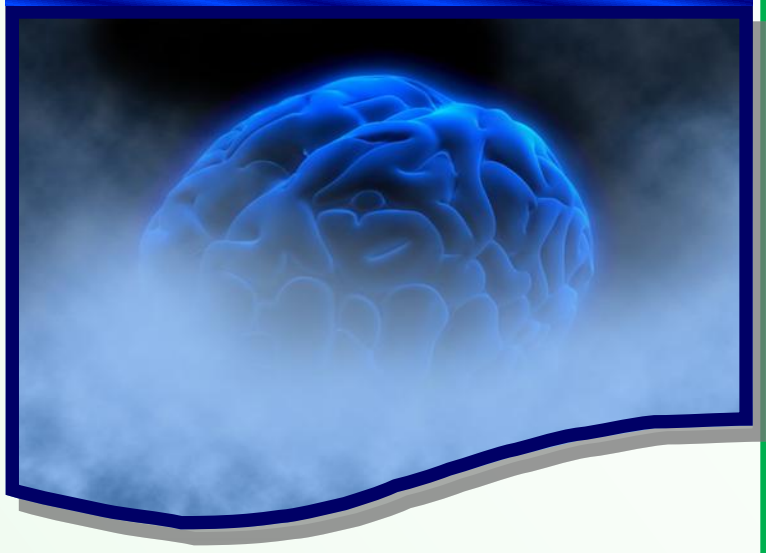
Concentration is the brain's ability to focus on a specific task or doing, and what precedes not being able to retain information in a person with Lyme is not being able to focus on it in the first place -the precursor for allowing information to be remembered. A severe inability to concentrate can really impact a person's intentions. In fact, a person with Lyme Disease will resort to concentration when they find that their memory for the most basic doings, such as starting a car, isn't functioning properly. But likely not to their surprise, they find that their ability to concentrate is just as dysfunctional as their ability to remember.

Being unable to concentrate can have a great impact on reading, where many times a person with concentration difficulties will need to reread something many times over, but to no avail. They're reading, but it's just what they're doing. They're not retaining, let alone remembering what they've read. Concentration of the brain needs to work properly in order for what is being read to be retained.

DEPERSONALIZATION (I.E., LOSING THE EMOTIONAL CONNECTION TO LIFE):

A person who is unable to remember certain information, especially simple things, would be expected to feel and display to some extent embarrassment, but they don't. The reason they may not is because they may be suffering from Lyme induced depersonalization. It's a symptom of Lyme that can be worse on some days, and be near completely gone on others, leading a person with Lyme into great confusion as to what they really feel for someone or something.

A severe inability to concentrate can really impact a person's intentions.



While this brain dysfunction is naturally seen as negative and unwanted, there have been scenarios where a person with Lyme Disease experiences a very troubling or hard time in their life and being depersonalized actually helps them deal with it. During an experience in which a person is expected to cry, be sad, or feel frustrated, a person with Lyme can remain completely emotionally unaffected by it.

The depersonalization can actually help a person deal with scenarios and experiences that can usually be very hard on a normal person's emotions. Depersonalization from Lyme is very complex in itself, so attempting to explain it, especially for someone with brain fog who is the best person to explain it, is no easy articulation. There is a hypothesis that Lyme Disease has the ability to destroy serotonin receptors which are responsible for mood and other anatomical functions. Depersonalization is sometimes referred to as floating or feeling emotionally numb.

What causes brain fog?

THE PATHOGENS THEMSELVES:

The cause for all the distress and dismay, the pathogens. The Lyme bacteria is spiral shaped which thus allows it to literally drill into the body's tissue, and drill it does. The Lyme bacteria also has the ability and desire to sometimes drill into the body's cells such as nerve cells and white blood cells. It has also been postulated that Lyme may be able to destroy receptors within the brain.

Lyme is also capable of moving beyond the blood brain barrier which is supposed to protect the brain from pathogens such as Lyme. This is why it's very important to have a treatment protocol that consists of some type of antimicrobial that can cross the blood brain barrier as well.

TOXINS (EXOTOXINS AND ENDOTOXINS):

The Lyme bacteria releases two types of toxins in the body - exotoxins, which are toxins they release all the time as waste material, and endotoxins, which are toxins they release when their cell walls are lysed (i.e., destroyed) from either the immune system or some type of antibiotic or antimicrobial.

Lyme has been shown to release ammonia, an exotoxin, which in and of itself can disrupt proper brain function. It isn't unusual for those with Lyme to possess high levels of ammonia, and not being able to detox it effectively could be due to an expressed CBS gene mutation. You can find out if you have a CBS gene mutation by testing through 23andMe, and then uploading your results to geneticgenie.org

The endotoxins the Lyme bacteria release when it's killed can accumulate in the brain if a person's body is not able to detoxify them in an efficient manner. As a result, the destruction of neurons and brain tissue may occur which can bring forth symptoms that mimic those with Alzheimer's.

The presence of these endotoxins themselves will call upon the body's natural immune response to deal with them -releasing cytokines. The cytokines themselves have the ability to cause and exacerbate symptoms within not just the brain, but the entire body. This is why reducing inflammation in the chronic state that it exists in within those with Lyme is very important for healing. This is also why the Lyme Disease Diet removes specifically gluten and dairy because these products themselves cause an inflammatory response in the body.

INFLAMMATION:

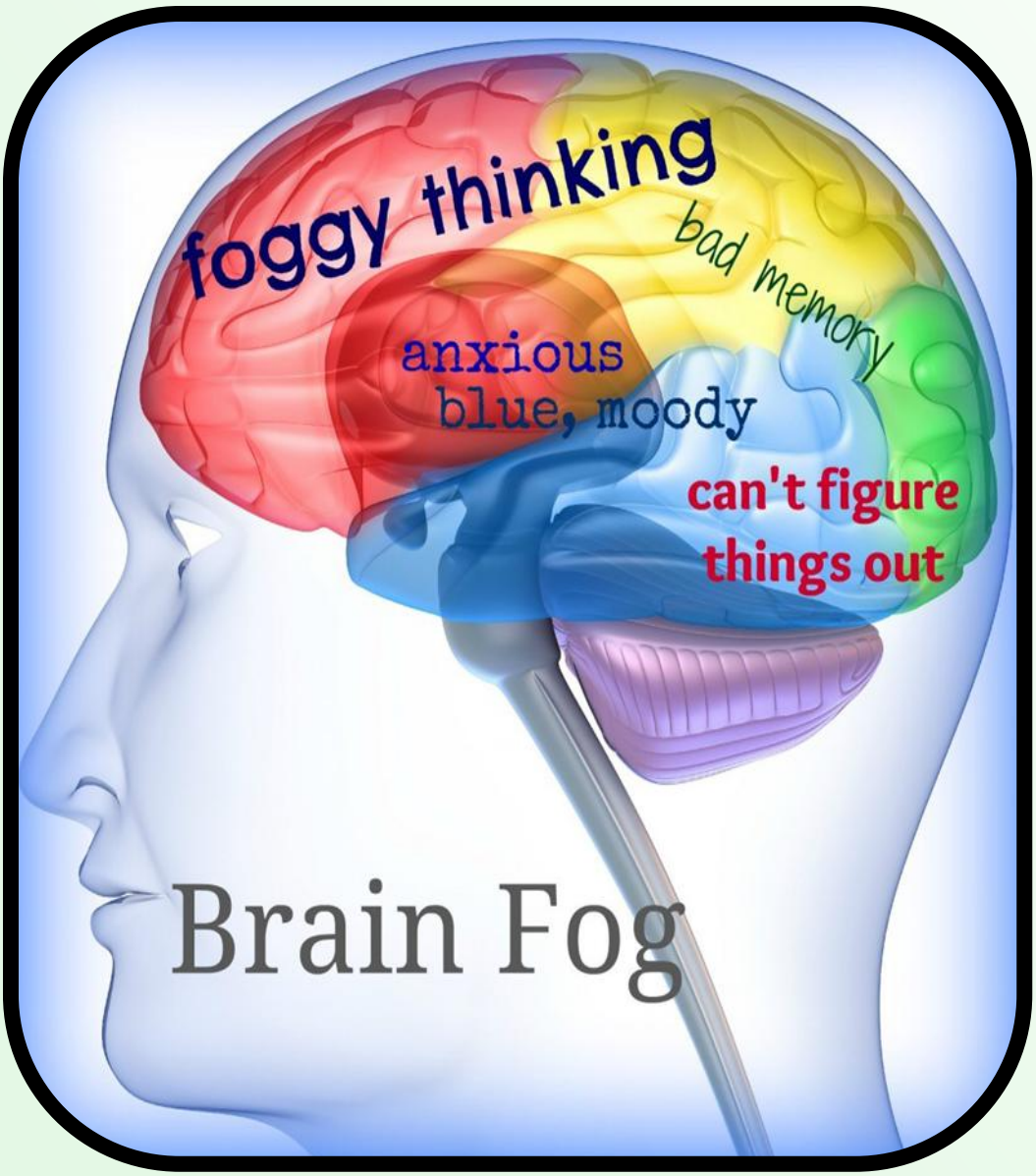
Even in a person who doesn't have Lyme Disease, not getting enough sleep will still cause them to release cytokines. In people with Lyme Disease, because they already have abnormally high levels of cytokines (i.e., inflammation), not getting enough sleep releases more to the extent that they actually experience not just symptoms, but an exacerbation of them such as brain fog, pain, fatigue, etc.

HOW TO HELP REDUCE BRAIN FOG:

The obvious first and foremost way to help reduce brain fog is to eradicate the cause. In those with Lyme, it's usually the Lyme bacteria, but can very likely be just as much the coinfections.

Get not just enough sleep, but sleep during certain hours of the night. It is recommended to sleep from around 10pm to around 7 or 8 am. Getting the appropriate amount of sleep will ensure the immune system stays strong and also reduces the amount of cytokines the body releases from a lack of sleep.

Remove the toxins from the brain. There are great supplements that can help clear the brain of toxins such as Pinella by Nutramedix and Neuro-Antitox ll CNS/PNS. Also determine if you're dealing with an expressed gene mutation, which will further allow you to detox and remove certain toxins from the brain.



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PARASITES & *WORMS*

The New Lyme Disease Co-Infection?

Excerpt from Chapter 7 of *Freedom From Lyme Disease*
by Bryan Rosner

A New Frontier in Lyme Disease Treatment

Why should we take a deeper look at parasite problems? There are several important reasons which we will examine over the next few pages. Don't jump to any conclusions until you've finished reading the entire chapter!

First, the anti-parasitic treatments included in most over-the-counter herbal cleanses are not typically powerful enough to accomplish the goals we are after; therefore, even if you've done parasite cleanses, you probably haven't addressed more extensive parasitic infestations.

But more importantly, while some parasitic infections are located in the gut, many are not restricted to the intestinal tract. If you've read my past book, *The Top 10 Lyme Disease Treatments*, you may recall this statement from the introductory chapter:

"Lyme disease is a bacterial infection caused by Borrelia burgdorferi, an elongated, spiral-shaped bacteria transmitted to humans through the bite of a tick. Known as spirochetes, these bacteria are unusual, not well studied, elusive and difficult to cultivate in the laboratory, and capable of advanced survival activities more commonly found in larger, more intelligent organisms."

Pay attention to the last sentence. Years after I wrote that statement, it is now well-established that Borrelia organisms (and even the co-infections Babesia and Bartonella) are unlike many other kinds of microorganisms in that they are highly advanced in their lifecycle activities, survival capabilities, and ability to respond to environmental threats.

However, there appears to be even more going on here. Many physicians and researchers now believe that there are also other, recently discovered community members living within the infectious colonies inside the body of an infected person. Modern science hasn't solved all the mysteries surrounding this discovery, but we are beginning to uncover some answers to important questions. For example, we know that these community members are larger than Borrelia, Bartonella and Babesia, and we know that they play an important role in the Lyme complex. They are likely worm, or worm-like organisms, or even a number of different species of worm-like organisms. It is also possible that these organisms may have merged with Borrelia, creating a type of hybrid organism with shared DNA.

As it turns out, these larger worms or parasites have some surprising properties. First, they can live outside the gut and throughout the rest of the body. Historically, worms and worm-like parasites were believed to be mostly confined to the gut. These new worms or parasites can take up residence with Borrelia, Babesia and Bartonella, take shelter within biofilm communities, and become important partners in the survival of the infections. Over the last several years, different researchers have given these new organisms different names.

It now appears that many Lyme sufferers are infected with these newly acknowledged parasites, just like many Lyme sufferers carry co-infections. Furthermore, because of the symbiotic relationship between parasites and Lyme-related infections, without addressing parasites, overall progress in healing may be halted. Therefore, the topic of treating parasitic infections is a hugely important topic. Ignoring it could cause your entire healing process to come to a halt.

Additionally, evidence indicates that anti-parasitic treatments may, in fact, be able to target more than just these parasites; they may also target Borrelia, Bartonella, and Babesia. So, use of these treatments can have all kinds of important new benefits. Thinking of them only as "anti-parasite treatments" restricts their definition to a very limited scope and misses the important reality that they may have a larger impact on entire colonies containing numerous types of bacteria. Bacterial colonies cloaked in biofilm are complex communities, and we don't yet fully appreciate how various treatments are capable of weakening and compromising them.

But there's more. At least one top practitioner has discovered that worm DNA can be found in bacterial biofilm, meaning that larger and more complex organisms (worms) may be involved, to some degree, in the proliferation and survival of much smaller bacteria, such as Borrelia. In fact, it may be impossible to adequately treat Lyme disease biofilms without addressing this worm component. So, as you can see, the use of anti-parasite (and anti-worm) treatments may go a lot further than merely killing a few worms that may be living in the gut. Anti-worm therapies may have the capability to destabilize entire Lyme disease colonies located in deep tissue throughout the body, helping to destroy Lyme disease. Let's summarize:

1. Borrelia organisms and co-infections like Babesia and Bartonella may be susceptible to the advanced anti-parasite treatments listed later in this chapter, giving you a new weapon against these infections.

2. The protective biofilm surrounding Borrelia colonies may be degraded by anti-parasite treatments.

3. There may be worms or worm-like organisms living within bacterial colonies throughout the body, and these organisms may be susceptible to anti-parasite treatments.

4. Anti-parasite treatments may have a significant impact in weakening all of the infective colonies throughout the body.

5. If parasites are untreated, progress against the other infections, like Borrelia, Babesia and Bartonella, can come to a halt. In this way, treating parasites doesn't just provide the benefits discussed in this list, it also renders other co-infections more susceptible to treatment.

6. Finally, it's important to remember that the kinds of parasites we are talking about in this chapter don't just inhabit the gut; they can also inhabit many other parts of the body.

Profound Improvement Experienced with Parasite Treatment

These theories aren't just academic. In fact, many Lyme sufferers are noticing huge improvements when using various anti-worm protocols. But it is important to be very clear here: Most of the well-known and often-used anti-parasite cleanses and herbal preparations are not capable of eradicating the parasites involved in Lyme disease. Keep reading to discover new solutions which offer much greater efficacy.

When employing these new solutions, some people report gains that were previously impossible using any other treatment. Even cognitive symptoms such as depression, memory loss, irritability, anxiety, and others can respond rapidly to anti-parasitic treatments. It is for this reason that I believe this chapter has some of the most important information in the entire book. We aren't just talking about a theoretical breakthrough; we are talking about a new treatment methodology that has actually been making many people feel much, much better.

It makes sense that such significant healing is possible if prior Lyme disease treatment was only targeting Borrelia, Babesia, and Bartonella but missing an entire species of worm or parasite. My own battle with Lyme disease began shortly after I consumed contaminated snow on a hike, circa 2001. I had horrible intestinal symptoms for weeks after this incident, which gave way to full-blown Lyme disease. I believe that Borrelia, Bartonella, and Babesia were hiding out in my body prior to this but were fully activated by the presence of some new kind of parasites that were introduced on that hike. Is it possible that parasites I picked up from that snow somehow migrated out of my digestive system, joined forces with Borrelia and company, and began building infective colonies together? Could this be why my Lyme disease symptoms exploded after what should have been a parasitic episode limited to my gut? I believe this is exactly what happened. I think there is a lot more going on with this disease than we currently understand. I even believe it is possible that Borrelia and the intestinal parasites somehow morphed inside my body into one hybrid organism with customized DNA. In fact, I believe that many people infected with parasites and Lyme organisms may be harboring custom species inside their bodies, species which can be different from any other species in the world. Such DNA sharing has been recorded in the scientific literature, and these kinds of incidents could explain why everyone responds so differently to Lyme disease treatment. If we are all walking around with a slightly different variation of the disease, it makes sense that no two people will respond in the same way to the available treatments.

I'm not alone in my observations. Several top researchers have identified new organisms which appear in their Lyme disease patients. Some of these organisms are labeled as protozoan, some are labeled as bacteria, and some are actually thought to be hybrid organisms which display characteristics of more than one kind of microorganism. Anti-parasitic drugs are thought to be among the most useful treatments for these new organisms.

We may not currently have the medical technology and resources required to explain exactly why anti-parasitic drugs and treatments work to help Lyme disease patients, but we are certainly making progress in unraveling the mysteries. I believe the following point is key: If we wait for 100% understanding before we proceed with treatment, we may be waiting decades before feeling better. This approach is unacceptable in my opinion. If people are getting better now using anti-parasitic treatments, I believe we should consider these treatments, even while all of the facts are still being discovered. We may not know exactly what the treatments are hitting, but we know they are hitting something, and that people are getting better. Of course, I advocate using these therapies only to the extent which they are safe, and only under the care of a licensed physician.

Many top Lyme doctors agree with me and now prescribe anti-parasitic protocols to their patients. This chapter will examine some of these protocols, and will also provide my observations and opinions about them. Please remember that some of the information in this chapter is based on my own personal observations and experiences; do not assume that my perspective is the only accurate perspective.

The Subtleties of Synergism

While the direct effect of anti-parasitic treatments may in fact be substantial, the treatments also offer a more subtle benefit. To discover this benefit, let's consider what is happening in the bodies of people who have been sick with Lyme disease for a long period of time.

After the bacterial colonies (comprising Borrelia, co-infections, and parasitic components) have survived in the body for months or years and have been attacked by various treatments, they take on a much more entrenched, treatment-resistant configuration. In other words, if you have been sick with Lyme disease for a long time and have tried many things, your infected areas are a bit like battle-hardened military platoons. They are hunkered down, protected, and resistant to whatever you are trying to do to defeat them.

This means that anything you can do to destabilize these highly protected colonies will allow the other treatments you are using (or have used) to be more effective. If you can breach their defenses, then they will no longer be able to ward off the normal Lyme disease treatments you've been trying to use against them.

This principle does, in fact, undergird much of this entire book, and Chapter 3, which describes the Antibiotic Rotation Protocol, is largely based on it.

Because anti-parasitic treatments weaken biofilm and attack members of the protected community using mechanisms of action different from any antibiotic you've probably taken in the past, they provide a new method for destabilizing the infective colonies located throughout the body. Therefore, after having used anti-parasitic treatments, you will likely notice not only an improvement in your symptoms but also a general increase in the effectiveness of other anti-Lyme and co-infection therapies. This double-whammy—improvement experienced from anti-parasitic drugs alone as well as from renewed effectiveness of other treatments—is why it is so important for us to always introduce new treatments into our treatment programs.

When facing a stalemate against the infections for months or years, this destabilizing effect can provide huge benefits in the battle.

Herbal vs. Pharmaceutical Treatments

One of the most common statements I hear repeated is that people prefer to use natural, or non pharmaceutical treatments when combating Lyme disease. And of course, this goal can be a very beneficial pursuit as it spares the body the damage done by pharmaceutical treatments. Furthermore, because Lyme disease requires such extended treatment, pharmaceutical therapies can take an increasingly large toll on the body over time, and can lead to a serious breakdown of the immune system and other body systems.

Additionally, because the infectious organisms involved in Lyme disease are so treatment-resistant and often hide behind biofilm, many of the powerful pharmaceutical anti-infective therapies people use have negligible effects against the infections and don't even reach their targets. This can be especially true if you are using a drug which targets an infection that isn't currently the top layer of the onion.

Combine these factors, and you'll note that pharmaceutical treatments have a dismal risk-to-reward ratio: they can wreak havoc while providing only minor benefits.

While this reality is unfortunately true in many cases, there are exceptions. A carefully targeted pharmaceutical attack, used for only the short duration before the infections become resistant, can provide unparalleled killing power with minimal side effects.

This is true for all of the infections involved in Lyme disease, not just parasites. Such a strategy used in rotation with other effective strategies can provide huge leaps in progress. The key, of course, is to recognize the difference between extended, ineffective use of pharmaceuticals and precise, targeted, effective attacks.

Experience has shown that, while it is admirable to prefer natural treatments over pharmaceutical treatments, the healing and progress described in this chapter simply are not possible when pharmaceuticals are completely avoided. When used intelligently, the rewards of using pharmaceutical anti-parasitic drugs can outweigh the associated risks of side effects or negative effects on the body.

Now, we'll look at the most useful of the pharmaceutical options as well as a few of the powerful herbal remedies which have a proven track record.

The Anti-Parasite Protocols

IMPORTANT NOTE: *The protocols listed in this chapter draw from the research and wisdom of numerous Lyme disease doctors, researchers, and patients. However, these protocols also incorporate my own findings, based on my own research and experience. Therefore, as you read this information, please realize that it is not a "one-size-fits-all" approach to healing. Your own situation and needs may differ significantly from what is offered here. Please use this information only under the guidance of a licensed physician.*

Also, please note that some of these drugs are untested and unapproved by the FDA, and they may be potentially unsafe. In addition to the approval of a licensed physician, I suggest collaborating with other Lyme disease sufferers to share your experiences with the protocol and get feedback from others about how they use the protocol. I have found that peer-to-peer collaboration can be invaluable when using protocols that do not have a great deal of established methodology and "best practices."

Furthermore, before taking any of the below treatments, I suggest you extensively research them to understand their potential side effects, interactions, and issues. It is also helpful to be familiar with how extensively the drugs are absorbed, whether food increases or decreases their absorption, which organs are needed to metabolize and excrete them, what the drugs' half-lives are, and what kinds of infections they are most often used for. You will also want to know about any interactions. Should they be taken with food or on an empty stomach? And if with food, should they be taken with a fatty meal or a normal meal? It is my own personal policy to become as much of an expert as I possibly can on new drugs prior to putting them into my body. Even my guiding physician doesn't know everything about every drug, and I believe it is critical for people to take responsibility for their own healing and health. If you are unwilling to study up on these drugs and collaborate with an experienced doctor on their use, then I strongly suggest avoiding these treatments.

It is also important to start only one new drug or treatment at a time, so you can carefully interpret what that treatment is doing within your body without the confusion of multiple new treatments.

Finally, people who are working with experienced doctors are much more likely to succeed with Lyme disease treatment because these doctors may have had many, or dozens, of patients on these drugs, and therefore, they know what kind of things to watch for and which warnings to issue to their patients. Using these treatments without an experienced, supervising doctor greatly increases the risk of failed treatment and side effects. I very strongly recommend that you pursue pharmaceutical treatments only under the care of a licensed physician.

I will not be specific about drug dosing in this chapter as the recommendations vary among different health care practitioners. Some doctors advocate doses which I believe to be much too high. Therefore, I will leave it to you and your physician to customize the dosages.

The Basic Parasite Protocol

The following drugs are listed in the order in which they should be used. They are not used in combination; they are used separately and sequentially.

Biltricide—Use for 4 days.

Pyrantel pamoate—Use for 17 days.

Ivermectin—Use for 17 days.

Albendazole—Use for 17 days.

Alinia—Use for 17 days.

Notes on the Basic Parasite Protocol:

While the above recommendation for the number of days to use each drug can serve as a general guideline, I recommend that you tailor these recommendations based on the Antibiotic Rotation Protocol principles (see chapter 3). In other words, if you feel a drug is beneficial for longer than the prescribed period, then stay on it for additional time (assuming that the side effects are manageable and that you are under the care of a physician). Alternately, if your Herxheimer reactions and improvement dissipate before the end of the time period, consider stopping the drug early. No dosing schedule should be rigid. Some people benefit from much longer periods of use of the same drug, while other people do better on a more rapid rotation schedule.

Also, because parasites can reproduce rapidly and are difficult to eradicate from the body, it may be necessary to use the above sequence of drugs more than one time; in fact, it may need to be used many times over a period of years. Some people report that if they revisit this protocol once or twice a year, they experience renewed improvement and additional results. Interestingly, the subjective experience of using these drugs can be different with each subsequent rotation, indicating that the same drug may be hitting different layers of the onion each time it is used. For example, one year, Ivermectin may cause improvement in memory and mood, and the next year, it may lead to improvements in energy, muscle aches, and stamina.

Finally, because these anti-parasite drugs may uncover other infections or render them more vulnerable, combining this protocol with protocols targeted toward Borrelia, Babesia and Bartonella can be very helpful. For example, one Lyme patient reported that combining Alinia with Tinidazole caused rapid and unprecedented symptom improvement. However, please consult a physician before combining these or other pharmaceutical drugs, because some combinations may be toxic and dangerous.

My Comments on the Drugs in the Basic Parasite Protocol

These comments are based on my personal research and experience; they may not apply to everyone equally. As always, please consider the advice of your doctor to be more accurate than this book.

Biltricide: This is one of the weaker choices. It is taken first to eliminate some intestinal parasites and liver flukes. It has had limited benefit for some Lyme sufferers but may still be included as part of a complete treatment protocol.

Ivermectin: This is one of the big guns of parasite treatment. It is widely recognized as one of the most effective drugs for Lyme disease patients. It has a very broad spectrum of activity and is absorbed systemically. It is believed to target some of the mystery bugs which researchers are just beginning to identify and name, and which are now being recognized as commonly occurring Lyme disease co-infections. If you do a Google search for Lyme disease Ivermectin, you will find a great deal of information as well as patient testimonials and write-ups. Some top physicians now believe that this drug can partially address Bartonella. Ivermectin is generally well tolerated, and although some physicians recommend very high dosages, I personally do not feel comfortable with those dosage levels.

Of interest is the finding that Ivermectin targets bacteria as well as parasitic organisms. This finding further reinforces my earlier statement that anti-parasitic drugs aren't just targeting new mystery organisms, but they may also be helping us fight Borrelia, Bartonella, and Babesia as well.

Consider the following research from France:

Ivermectin is currently approved for treatment of both clinical and veterinary infections by nematodes (worms), including Onchocerca cervicalis in horses and Onchocerca volvulus in humans. However, ivermectin has not previously been shown to be effective against bacterial pathogens. Here we show that ivermectin also inhibits infection of epithelial cells by the bacterial pathogen, Chlamydia trachomatis, at doses that could be envisioned clinically for sexually-transmitted or ocular infections by Chlamydia.

-Source: University Paris Sud, France

This information is fascinating, indeed! Now we can start to see a clearer picture of why anti-parasite drugs can have multi-faceted benefits and be so useful in Lyme disease.

Pyrantel pamoate: Available over-the-counter. Can profoundly impact Lyme disease and co-infections. Generally well tolerated.

Albendazole: A cousin of the popular Mebendazole, Albendazole is much more powerful, has more significant side effects, and targets a broader range of organisms. Due to potentially serious side effects, close monitoring is necessary. Can have significant benefits.

Nitazoxanide: This drug is typically sold under brand name Alinia, but much more affordable brand names can be purchased from overseas pharmacies.

Nitazoxanide is considered to be very useful by a large number of practitioners and can target numerous kinds of protozoan, including Babesia. It is also useful for other types of parasites, and is considered to be a "cyst busting" drug by some researchers, so it can impact Borrelia, too. For these reasons, it is one of my favorite drugs in this chapter, and it has broad application for Lyme disease patients.

As if the above-mentioned benefits of nitazoxanide weren't enough, the drug also impacts biofilm formation. This was shown by research published in Oxford's Journal of Antimicrobial Chemotherapy, in a study entitled, "Nitazoxanide inhibits biofilm formation by Staphylococcus epidermidis by blocking accumulation on surfaces. "Several other studies also demonstrate nitazoxanide's inhibition of biofilm. And lastly, nitazoxanide has even been shown to inhibit numerous viruses, including hepatitis. Peer-reviewed studies have demonstrated this anti-viral effect.

So, yet again you can see the diverse and much-needed benefits of anti-parasitic drugs. To summarize, nitazoxanide is used to kill parasites, Babesia, Borrelia cysts, viruses, and to disrupt bacterial biofilm. It's no wonder that Lyme patients, who are often afflicted with most or all of these problems, can feel so much better as a result of using nitazoxanide. Nitazoxanide is one of the most multi-talented and broadly applicable drugs available to Lyme sufferers, and I consider it to be one of the most important new treatments presented in this book.

**Nitazoxanide is generally well tolerated but physician monitoring is still advisable.*

Other Useful Drugs

The Basic Parasite Protocol as described above the most established and tested parasite protocol recognized by various Lyme disease doctors, researchers, and patients. However, my own, independent research and experience has revealed a few other anti-parasitic drugs which I believe have the potential to augment and complement the existing protocol. Remember, most of these infections (including Borrelia, co-infections, and parasites) develop resistance to most treatments, so expanding the arsenal of available options can lead to dramatic improvement and destabilization of the infective colonies. So, it is beneficial to have as many choices available to us as possible.

Again, I want to remind you that these treatments are experimental; proceed with caution. I have personally used all of the drugs mentioned in this chapter, , but I do not recommend nor endorse them for use by others. A drug may be be well tolerated by one

person, but cause significant side effects for another.

Mebendazole: A weaker cousin of Albendazole, some people find this drug to be useful. It may also be useful for people who cannot tolerate the more extensive side effects profile of Albendazole.

Diethylcarbamazine: Sometimes referred to simply as DEC, this is a very interesting drug. It is unique because it operates by a mechanism of action different from any of the other parasite drugs. Therefore, it may be useful when resistance has developed to the other drugs. Various sources also cite anti-inflammatory, hepatoprotective, immuno-modulatory, and other beneficial effects of the drug, making it an interesting option for people with weakened livers or extensive inflammation. In fact, this drug's Immuno-modulatory effects are so profound that some researchers suspect its killing ability is related more to fine-tuning the immune system to see the pathogens than to the direct chemical effect of the drug against worms and micro-organisms.

My conclusion, based on research and experience, is that it accomplishes both objectives: it modulates the immune system for much more effective targeting of infections, and at the same time, kills worms and micro-organisms via direct, chemical activity.

Also, this drug has strong activity in the endothelial cells, which is exactly where Bartonella likes to live. So, Diethylcarbamazine may directly inhibit Bartonella or at least kill the parasites protecting Bartonella.

Diethylcarbamazine seems to be one of the anti-parasitic drugs which leads to the most immediate and pronounced reduction of Lyme disease symptoms (possibly because it isn't just targeting infections, but it's also modulating the immune system). This plethora of very useful actions makes Diethylcarbamazine one of my favorite anti-parasite drugs, if not my single favorite drug. It is difficult to locate DEC in the United States, but it can be purchased affordably from other countries. DEC is typically well tolerated and has a mild side effects' profile for many people. When I reflect on what I now know about DEC, I often find myself thinking, "I really wish someone would have told me about this drug years sooner in my Lyme disease battle!"

Moxidectin: This drug is a cousin of Ivermectin. It is more lipophilic than Ivermectin and has a much longer half-life. Due to the long half-life, extreme caution must be exercised with dosing: if too much is taken, the drug will remain in the body for a very long time, so overdoses can be serious medical emergencies. Information on use in humans is limited; however, at least a couple of studies demonstrate that it is safe for human consumption. As always, consult a physician before use.

Non-Pharmaceutical Options

As you may already know, dozens of herbs and natural preparations are touted to be useful for parasites. Honestly, based on my own experience and research, the majority of these have limited effect for most people, at least with the entrenched, systemic parasites we see in cases of Lyme disease.

The two herbal preparations with the most convincing user testimonials for Lyme disease and co-infections are **Humaworm** (www.humaworm.com) and **Parastroy** (made by Nature's Secret, available from various retailers including www.iHerb.com). Due to their low price and relatively limited side effects, these preparations are worth a try, but for some people, the results will not be nearly as forthcoming as when pharmaceutical drugs are used.

On the other hand, there is one herbal preparation which may be as effective as the drugs, if not more: Mimosa Pudica. Although it has a very funny-sounding name, Mimosa Pudica is very powerful and has demonstrated a broad spectrum of activity against many of the parasites which accompany Lyme disease. Some research shows that this herb also targets Babesia. People who us it

typically report dramatic results in many pesky and difficult symptom areas, including cognitive problems. You need to be careful of one thing, though: Product quality can vary vastly between different suppliers. Some versions of the products have been foul, unhelpful, and maybe even toxic, according to some of my sources. Purchasing it from a compounding pharmacy where quality is more closely regulated is a very good idea. Also, there are some data which indicate that Mimosa Pudica can have toxic side effects. Please use this (and all potentially dangerous treatments) only under the care of a licensed physician.

Various other herbs exist. Their exclusion here doesn't necessarily mean they aren't worth using, but the above listed options are the ones which I have found produce consistent results. Note: Several other herbs with anti-parasitic uses are listed as Individual Treatments in Part III of the book. Some of these, such as moringa oleifera, can be quite beneficial.

Tips for Success When Treating Parasites

Treatment Timing: Like most of the other treatments covered in this book, parasite treatments only work when the treatment being used matches the susceptible organisms located on the top layer of the infective onion we are trying to unpeel. If those particular organisms are in dormancy, covered by layers of other infections, protected by biofilm, or simply in non-susceptible phases of their life cycles, then the treatments will be worthless.

Unfortunately, I am unfamiliar with a reliable way to ascertain which infections are susceptible to which treatments at any given time (except in instances where you can match up particular active symptoms with particular infections). Energetic testing can provide clues. Also, parasites are generally more active during the full moon phase, so increased symptoms during that time can indicate the presence of parasites. It can also be noted that the full moon phase is a very good time to target parasites, as they are more active and susceptible to treatment during this time.

The moral of the story is that trial and error may be required to figure out which drugs and herbs should be used at various times throughout the recovery process. When I was working through my own recovery process, I found that at certain periods of time, anti-parasitic treatments were immensely useful, and during other periods, they did absolutely nothing.

Remember also that the treatments which were helpful for a time but then stopped working will almost certainly be useful again at some point in the future, when the right organisms have their turn as the top layer of the onion. In fact, treatments which you've already used in the past and which have become totally ineffective may yet be extremely effective again, if only they are used at the proper time. So, take those parasite drugs back off the shelf after you've rotated through the whole lot of them; they will, with certainty, be useful again at some point.

Mind Games: In December 2012, the New York Times reported that many kinds of parasites actually take control of their host's mind. As scary as it sounds, it is a reality. With Lyme disease, the most common manifestation of this phenomenon seems to be that parasites limit a person's drive, ambition, and motivation to get well. Somehow, people are convinced that they are not that sick, and that aggressive treatment is not required or desirable. This is one of the reasons why it is so important to be under the care of a good doctor who can prescribe the necessary treatments. Be aware that you may have been pacified by the parasites in your body, and you may need to work diligently to get well despite the feeling that your problem isn't urgent. ***Source***: *http://www.nytimes.com/2012/12/11/science/parasites-use-sophisticated-biochemistry-to-take-over-their-hosts.html*

Where to Purchase Anti-Parasitic (and Other) Drugs

Several of the drugs listed in this chapter are available from U.S. pharmacies

at reasonable prices. Others may be available in the United States but are exorbitantly expensive. Finally, some may not be available in the U.S. and are only marketed in overseas countries.

Therefore, shopping for drugs from online, foreign pharmacies may be one option worth considering—either for the purpose of saving money or to find drugs which aren't available in the U.S.

I have personally found several overseas pharmacies which have demonstrated reliability, honesty, and dependability. I will not print their names here, because even though I've had good experiences with them, I am still not confident enough in their product quality and dependability to publically endorse them. However, I will give you some of the tips I have followed for finding and using good online pharmacies.

WARNING: Please research the legality of importing drugs into your country, state, and city. Do not order drugs from foreign pharmacies if doing so is illegal in your area.

Hints for Finding and Using Reliable Online Pharmacies

- **Canadian Pharmacies.** There is a group of Canadian pharmacies which require a regular U.S. prescription and appear to be highly reliable. The downside to using them is that their pricing and availability tend to mirror that of U.S. pharmacies, but occasionally you can find a deal. To search this group of pharmacies for a particular drug, visit www.pharmacychecker.com. This website also has a general listing of the pharmacies as well as user reviews for those pharmacies. Do not use any pharmaceutical drugs without a valid prescription from a trusted physician. At the time this book was written, a few of these pharmacies had brand name Mepron (atovaquone) for less than half the price of my local pharamacy.
- **Non-Canadian Overseas Pharmacies.** The rest of the overseas pharmacies—i.e., those located outside of the United States and Canada—appear to be based in India, Europe, or more exotic locations. These are the pharmacies you need to be most careful of when it comes to their integrity and reliability since there have been multiple reports of un-received orders and stolen funds. Additionally, there is a risk of inauthentic or even dangerous and counterfeit drug shipments. One method for screening these pharmacies is to do a Google search for online pharmacy reviews. There are several sites which I've used and which are very helpful for ranking these pharmacies based on actual user reviews. I've ordered from several of these pharmacies and have had mostly good luck. Advantages of working with them include lower prices and a wider variety of products. In some cases, I've found products which are only one tenth the price of the same products available in the United States! Again, though, proceed with caution. While I have used these pharmacies personally, there are significant risks associated with purchasing from them, so I don't recommend that you make the same decisions I've made without first conducting significant research and consulting your physician. I would actually prefer to avoid these pharmacies all together, but in some instances, they carry drugs which can't be found anywhere in the USA or Canada.
- **Research Specific Brand Names.** Most online pharmacies will display the manufacturer name of the drugs they sell. While these manufacturers are typically not names you would recognize, some of them are reputable Indian or European manufacturers. You can Google the manufacturer names and read their websites, or read other news articles about the manufacturers to verify that they are high-quality, legitimate brands. **WARNING**: Not all online pharmacies ship legal, legitimate, safe, authentic drug brands. Please proceed with caution. Some are fraudulent and will steal your personal information and not ship your products. **DISCLAIMER**: I do not personally recommend that anyone shop from online pharmacies. Instead, I am simply

simply sharing my personal experiences here.

- **Ask The Lyme Community.** Many other Lyme sufferers are looking for the same drugs you are looking for, so there's no need to reinvent the wheel. Join large discussion forums such as www.lymenet.org and ask around for sources for the drugs you need. Many participants in these forums have used online pharmacies and can share their experiences.
- **Check With Compounding Pharmacies First.** Some USA-based compounding pharmacies can source rare drugs. It is safer to purchase drugs from these compounding pharmacies than from overseas pharmacies. Therefore, check with the many compounding pharmacies in the United States before looking overseas.
- **Double Check with Your Physician.** Make sure you check with your prescribing physician before using any drug. In all cases, your physician's advice should be considered more accurate than this book.
- **Lastly, please note that there may be many risks associated with ordering from foreign pharmacies,** including the risk of receiving dangerous counterfeit drugs, having your financial information stolen, never receiving the product you ordered, etc. I do not suggest that you place orders with foreign pharmacies. I am not advocating this course of action for any individual.

Climbing the Mountain of Victory and the End of Adrenal Fatigue

In conclusion, I would like to share a personal story which took place several years ago and which illustrates how parasitic infections can play a profound role in the Lyme disease complex. This story touches on the topic of Adrenal Fatigue, which is addressed in Chapters 5 and 6.

The debate rages on. Is adrenal fatigue caused by infections that wreak havoc on the adrenals and brain, or do the stresses of life weaken the adrenal glands and open the door for infections to take root? Which came first—the chicken or the egg? On and on the debate goes; where it stops, no one knows.

Except we do know, or at least we have clues. I will share with you what I have learned, and the clues I've gathered.

It was a smoky afternoon in my hometown in Northern California (my city gets smoke sometimes from nearby fires which rage across the Sierra Nevada Mountain Range). It was mid-August and peak fire season, but otherwise, it was a beautiful day. My better judgment, however, told me not to go for a hike; smoke inhalation would be extreme, and visibility was only about two miles.

An even more convincing reason not to go was my adrenal fatigue. At this point my adrenals had recovered to about 90%, but intense cardio exercise still brought me down. I wondered when this would ever end. When would I be able to hike the high, 10,000+ foot peaks of my hometown, again? Several years ago, I experienced a very, very stressful life event combined with what appeared to be a Bartonella flare-up. The sum of these two stressors seemed to send my adrenals into a tailspin, and while I had recovered a great deal, I still wasn't able to embark on a big, epic Sierra hike.

Only today, something was different. I felt strong, much stronger than I had in a long time. Just a week prior, I had begun a course of the anti-parasitic drug Diethylcarbamazine (discussed earlier in this chapter). When I began taking it this time, I didn't expect much. I'd already done several rounds of it in the past several years, and it seemed unlikely that it would be useful yet again. The drug was hugely helpful when I first discovered it, but I was skeptical that further use would provide any benefit. Besides, I had already achieved a very happy 90% recovery from Lyme disease. How much more improvement could I gain? Intuition told me that the drug had already killed whatever it could kill. My past uses of the drug, ranging from about 1-3 weeks in duration, surely knocked out any susceptible bugs.

But in this particular case, I took my own advice and defied my intuition, instead acting upon tried-and-true principles which I knew to be accurate. I accepted the wisdom which states that these anti-bacterial and anti-parasitic treatments are almost always useful, time after time, if only they are used at the right point in the infectious organisms' lifecycles. I didn't know it was a good time to use Diethylcarbamazine, but I figured a little trial and error wouldn't hurt. I took a chance; I made a guess. I remembered giving the drug a try just six weeks prior with almost zero response. Maybe this time it would be different…

And it was different. For some reason, this time, the drug kicked some major butt. I had very little Herx reaction—almost exclusively improvement. Strangely, I felt a tingling in the area of my mid back, the place that is home to my adrenal glands. I also experienced strange dreams reminiscent of the very early days of my original Lyme disease infection, and I had a new-found appetite for food, reminiscent of my teenage years. It just seemed that things in my body were changing, and changing fast. This hadn't happened before. Interesting.

While I had also been taking all of the other advice this book offers to heal the adrenal glands (And it had been helping.), this round of Diethylcarbamazine catapulted me into a new level of adrenal health in just about 10 days time. If you know anything about adrenal fatigue, you know that things just don't happen in 10 days. Interesting…again.

So as I stood at the bottom of a fairly good sized mountain on this smoky August day, I felt strength in my legs and reserves of energy I hadn't felt in a long time. I charged up that mountain solo, breathing in dense smoke. On the top of the mountain—sweating, heart pounding—I was subtly aware of the smoke headache that was coming on; I'd experienced this headache before many times while hiking during other summers of heavy smoke pollution. Surely breathing in this much smoke can't be healthy, I thought. The headache was a nuisance but only occupied a small part of my thoughts. Instead of the headache, I was distinctly focused on how I felt: just fine. Normally, during the worst of adrenal fatigue, I would have experienced symptoms which were activated almost immediately upon exercising—symptoms which are a hallmark of adrenal fatigue. They would include light-headedness, a dead-weight feeling in my legs, soreness in my mid-back, salt and sugar cravings, and then after getting home, a fatigue that had me collapsing into the nearest bed and falling straight to sleep regardless of ambient noise or distraction. The next few days would have brought fatigue, depression, and emotional volatility.

Not this time. I didn't feel perfect, but I felt good, much better than I had in a long time. The following day brought some normal, relaxing tiredness which I remember feeling before chronic illness. It was the kind of fatigue that reminds you of the hike you did yesterday, but doesn't slow your day down; a gentle, restful recovery mode commonly felt by athletes when they are recovering from exercise (I know the feeling well, as I used to race mountain bikes and road bikes in college). While I have always suspected that infections are one of the root causes of adrenal fatigue, my day of hiking in the smoky Sierra's provided confirmation. The difference in my body from before this round of Diethylcarbamazine to after was nothing short of astounding.

Sure, many factors contribute to adrenal fatigue, including the presence of a Type A personality, the occurrence of acute, life stress, and the predisposing genetic weaknesses which run in certain families, but I now believe that in most cases, these factors alone would not be enough to bring on adrenal fatigue without the help of infections to ruin the adrenal glands and mess up the brain signals which are sent to them. The lesson I have learned is to keep chasing after the infections long after you think you can't do anything else. Go back to those drugs or herbs that worked for you in years past and give them another chance. . If they don't work, wait another couple of weeks or months

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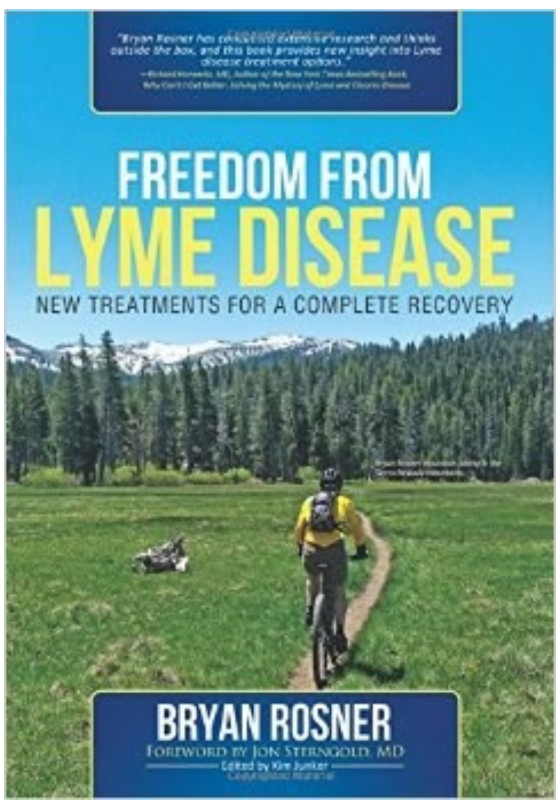
and try them again. The right treatment at the right time to target the right infections is just what the doctor ordered for sustained, continual progress in healing from this horrible disease. Of course, don't neglect the non-infection treatments offered by this book or elsewhere, but keep your sights set on taking out all of the infections, over and over and over again, until you find yourself standing on top of the mountain, like I have found myself.

You just never know when some lingering bacteria or parasites may be hanging out in your adrenal glands (or other organs). You just never know when the right course of the right drug at the right time can wipe these organisms out for good and let your tissues do what they've been trying to do for years—heal themselves. I will go back to a quote I heard from Doug, my original Lyme disease mentor, inventor of the eponymous "Doug Machine" (or "Coil Machine"), and long-time friend. Doug said to me, "While other people went on to investigate other health problems, I just kept chasing the infections, and I got well." I appreciate your wisdom, Doug, and I have followed in your footsteps.

Adapted from Chapter Six of Bryan Rosner's new book, FREEDOM FROM LYME DISEASE: NEW TREATMENTS FOR A COMPLETE RECOVERY.

Visit www.lymebook.com to order a copy.



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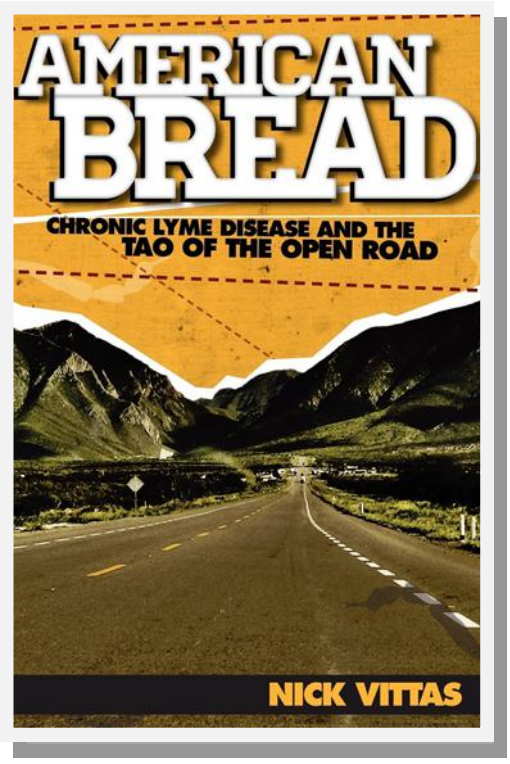
REVIEW OF *AMERICAN BREAD: CHRONIC LYME DISEASE AND THE TAO OF THE OPEN ROAD*

AND INTERVIEW WITH AUTHOR NICK VITTAS

BY SHELLEY M. WHITE, WITH NICK VITTAS



Lyme disease is not your typical disease, and *American Bread: Chronic Lyme Disease and the Tao of the Open Road* is certainly not your typical book. Let's not waste time sugar coating it: the dark nights of Lyme disease are often downright unbearable. Somehow, though, we endure them. As we do, we often grope for something, anything, to make those seemingly unendurable moments more durable, to no avail. As an avid reader, my vice was to always reach for a book to both validate and soothe the darkness I felt. However, finding such a book proved challenging until I had the pleasure of opening *American Bread: Chronic Lyme Disease and the Tao of the Open Road* by Nick Vittas.

From page one, I felt as if I were reading the words imprinted deep in my soul, the ones I always believed no one could possibly understand. Fast-forward a few pages, and I suddenly found myself laughing out loud at the chapters detailing the tales of Vittas' travels, which are intertwined between the more serious chapters relaying the lessons his journey with Lyme disease has taught him. His words are enlightening and riddled with reminders of why we should remain hopeful and not give up, even when mere traces of hope are scarce.

American Bread: Chronic Lyme Disease and the Tao of the Open Road inspires readers to bear the often unbearable nights, and then wake up to bravely face yet another day. At the same time, it reminds readers that healing from Lyme disease does not always have to be a painful process faced with a heavy heart -in fact, it shouldn't be. It can simultaneously be a lighthearted adventure composed of laughter and the exposure of deep truths about oneself and the world around them. What could be more healing than that?

Shelley: As you know, I am a huge fan of your work and am so thankful you decided to write *American Bread: Chronic Lyme Disease and the Tao of the Open Road.* What made you want to write the book?

Nick: I wanted to write the book that I was searching for in the early years of my disease. I wanted to try to give someone newly diagnosed with late stage Lyme a head start by relaying the chronic pain and chronic illness coping methods I picked up over the course of my first 14 years of illness.

I also wanted to remind someone with chronic Lyme that there are many ups and downs with the disease—it's a very fluid thing—so just because you are too sick to travel today does not mean that it will always stay that way. When I first became ill with late stage Lyme I did not realize the peaks and valleys associated with the disease, so I wanted to write a book that would leave the door open for adventure for those that are too ill to head out today.

Shelley: *American Bread: Chronic Lyme Disease and the Tao of the Open Road* shows one can still have fun and find joy in life, despite dealing with chronic pain. How have you managed to stay light hearted and find happiness amidst the pain?

Nick: I think the key is to adopt an outlook of enjoying what the disease allows you to enjoy instead of focusing on what the disease has taken away. Frustration is the biggest enemy to fulfillment, not the disease itself.

In the early years of my illness I was very frustrated that all my athletic abilities had been stripped from me, so along with carrying the physical burden of chronic neck and back pain, I also carried a lot of emotional baggage. I spent a big part of my days cursing the disease and longing for my old body back. This kind of thinking completely moved me out of the present moment, robbing me of any chance to find fulfillment in the present. Nothing good ever came to me from wishing. Don't wish!

There are many different ways to enjoy life. I found that my perception of happiness was very narrow in the early years of my disease. I could only be happy if I was pain free, athletically active, and able to do what I wanted exactly when I wanted. Slowly, as time passed, I became more flexible with what I would allow to bring me happiness. This flexibility has been my key to finding peace and happiness while coping with chronic pain.

Shelley: Many of the humorous, yet nonetheless enlightening, tales in your book are from the various road trips you have embarked on. A large majority of individuals with Lyme disease and other chronic illnesses find it difficult to even spend one night away from home. Any tips on how to travel with an illness like Lyme disease without jeopardizing your health?

Nick: I've had a lot of ups and downs with Lyme disease over the years. There were years when my symptoms were highly exasperated and years when the disease went into relative remission. Most of the travels in the book occurred during periods of decent health when my symptoms were on the milder side.

That being said, there were a few trips I took when my symptoms were exasperated, and the most important thing for me during those trips was to always put the disease first. I was already stressing my body by being away from home and driving long distances, so any reservation I had about any activity on the road—like a hike or a walk through a new city—I would weigh against the possible effect on my Lyme symptoms.

Again outlook helped a lot. If my back started to spasm in the middle of Nebraska, no matter how badly I wanted to get to Colorado, I would get a motel room and spend the next day or two lying down until the pain had returned to a moderate level. By avoiding frustration I would avoid pushing myself into a collapse.

Shelley: It seems you have been blessed with solid friendships that have prevailed against the hardships of Lyme disease. Can you offer insight on how to maintain healthy friendships while ill?

Nick: First of all, I try to never take any misunderstanding about my disease personally. My friends are not living with Lyme, I am. There is no way for them to know how hard daily life with a chronic illness is and I'm very glad they don't. For this reason I try to never become

offended during moments when they just don't get it—whether it's suggesting that my symptoms could be related to getting older instead of an invisible disease (please! 35 year olds don't hurt for 10 days after waiting in a 30 minute BBQ line) or asking me to help them move a heavy glass table real quick even though I've mentioned how sensitive my back is to heavy lifting for years. Lyme disease is my burden and I do my best to keep it that way. I go into it expecting misunderstanding from those around me, because in reality, how could they know what it's like?

I think a common mistake that many chronically ill people make is that they want their loved ones to suffer alongside them. This only produces tension and strain on a relationship. The disease is my problem and I try to keep it that way. The idea that I have a restricted diet so those around me should not enjoy foods I can't have when I'm around, or I can't go out today so my friends and loved ones should bunker down with me, is unfair in my opinion. We all have our individual challenges in life. If someone's mother passes away am I expected to stop seeing my mother? Lyme is my challenge, not theirs.

I try to keep my disease separate from my relationships—when possible. A great Chuang Tzu quote on this matter is "The man of the Tao goes without relying on others, and does not pride himself on walking alone."

Shelley: In the beginning of your book, you say, "throughout the past fourteen years the disease has demanded that I change specific patterns of thought, philosophies, and mine within my experiences for adaptations to my behaviors. Often the only alternative the disease offered me was to suffer in misery. And so I changed. I evolved at the hand of the disease." In what ways has Lyme disease changed you for the better?

Nick: My experience with Chronic Lyme has made me a more well-rounded and compassionate person. It's turned me on to Eastern philosophy, Taoism and Buddhism in particular, which have enriched my life beyond the parameters of dealing with chronic pain.

The physical limitations the disease has placed on me have forced me to evolve and grow as a person. I've been forced to find new outlets for fulfillment, most of which center around my creative side, which was neglected in my healthy life. I am a writer, I taught myself to play guitar and took up photography because I could not work out and play sports anymore. These creative pursuits have changed the way I see the world, I believe, for the better.

Shelley: What has been your darkest moment with Lyme disease thus far?

Nick: The first three years of illness were very hard for me because I didn't have a diagnosis and my body was deteriorating at an alarming rate. Over those years chronic pain spread from my neck, to my back, my arms and finally my legs. When my legs gave out and even a short walk became a challenge I hit an emotional rock bottom where I lost all hope.

Shelley: What about your happiest?

Nick: Several months after this rock bottom, I decided to run an experiment where I would have absolute faith that I would be healthy one day and see if it helped at all. After the first month my symptoms were no better, but I was happier than I had ever been. At that point I decided that attaining health was not the main benefit of positive thinking, happiness was. This whole process is detailed in the chapter "Two Month Experiment."

Shelley: If you had the option to go back in time and live a life void of Lyme disease, would you take it?

Nick: No. I wouldn't be the person I am today without the experience of chronic illness, and I am happy with who I am today, so no. That being said, I'd love to be a little closer to health than I am now too!

Shelley: You point out that pain is almost easier to deal with on a mental level when it is more severe, because there is "no room to brood and ponder how much easier life could be, there's only coping with the present moment." I couldn't agree with you more. Personally, I have found the moments when intense pain forces me into the present to be the highest form of meditation. Do you agree? Do you believe that, in this way, intense physical pain is one of our greatest teachers in life?

Nick: Yes, I do. There is a lot to learn from the experience.

Keeping my mind focused on the present was one of the biggest lessons and something that translates to all facets of life as well. I think a lot of people, myself included, gain good perspective on humility and compassion for others after experiencing chronic pain.

Shelley: One of my favorite lines in the book was when you said, "happiness is not dependent on something as fickle as the absence of pain." We would all be wise to remember that, as Lyme disease tends to consume our every thought. How can people step out of the grips of this disease and learn to experience peace and joy amidst pain, as opposed to falling into the trap of believing they must be cured in order to be happy?

Nick: For me, the most important thing was to become flexible with my concept of happiness. Once I was open to experiencing joy from different avenues, I became more fulfilled. This can be as profound as finding new hobbies and interests or as simple as opening yourself to the vicarious pleasures of observing other individuals experience something you can't—like a basketball game or a dance.

It is also not limited to chronic pain, but applies to anything we become fixated on as the ONE thing that we need to be happy. I think there is no one thing, and when we keep that in mind we are open to all things that can bring happiness.

Shelley: You state you have never had a spiritual teacher in the chapter "Unattached Action." However, your words are filled with insight, wisdom, and truth. Although you have never had an external being as a spiritual teacher, is it fair to say Lyme disease has served as an internal one?

Nick: Without a doubt.

Shelley: It seems you have recovered to the point where you were able to go out in the world and live more of a "normal" life a few times, only to quickly be knocked down again because you pushed your body too hard by doing something like playing basketball. Many people with Lyme disease give up. What keeps you from giving up when the inevitable feelings of defeat and regret surface, if even briefly, when this happens?

Nick: I try to always keep in mind what I can enjoy instead of what I can't.

Shelley: Lyme disease has taught you discipline, so much so that you devoted an entire chapter to the subject. In what ways has Lyme disease made you more disciplined?

Nick: Many different ways. First of all I had to learn to expel negative thoughts from my mind and keep my focus positive. This is a constant challenge. Once I was diagnosed I gave up all drugs and alcohol in order to give my body the best chance at a full recovery. At the time I thought it would be a matter of months, though I've been sober for over a decade now as the saga just keeps going. Lastly, there is the restricted diet, which might be the toughest one of them all—there's temptation everywhere you go.

Shelley: In your opinion, is discipline absolutely crucial in order for a person to heal from Lyme disease?

Nick: Each person is different. I have a hard time making blanket statements. I will say in my case it absolutely was, though I am far from physically healed. I do think that most hardships offer a lesson, though the same hardship (in this case Lyme) may offer different lessons for different people. There may be someone out there who is very tightly wound, who has no problem with discipline, but could benefit from learning how to let go.

Shelley: Do you have any tips on how to stay disciplined for those who are lacking in that department?

Nick: I'm a really competitive person, so I just call myself out and make it into a competition. I hate to lose, and usually won't allow myself to.

"Keeping my mind focused on the present was one of the biggest lessons and something that translates to all facets of life as well."

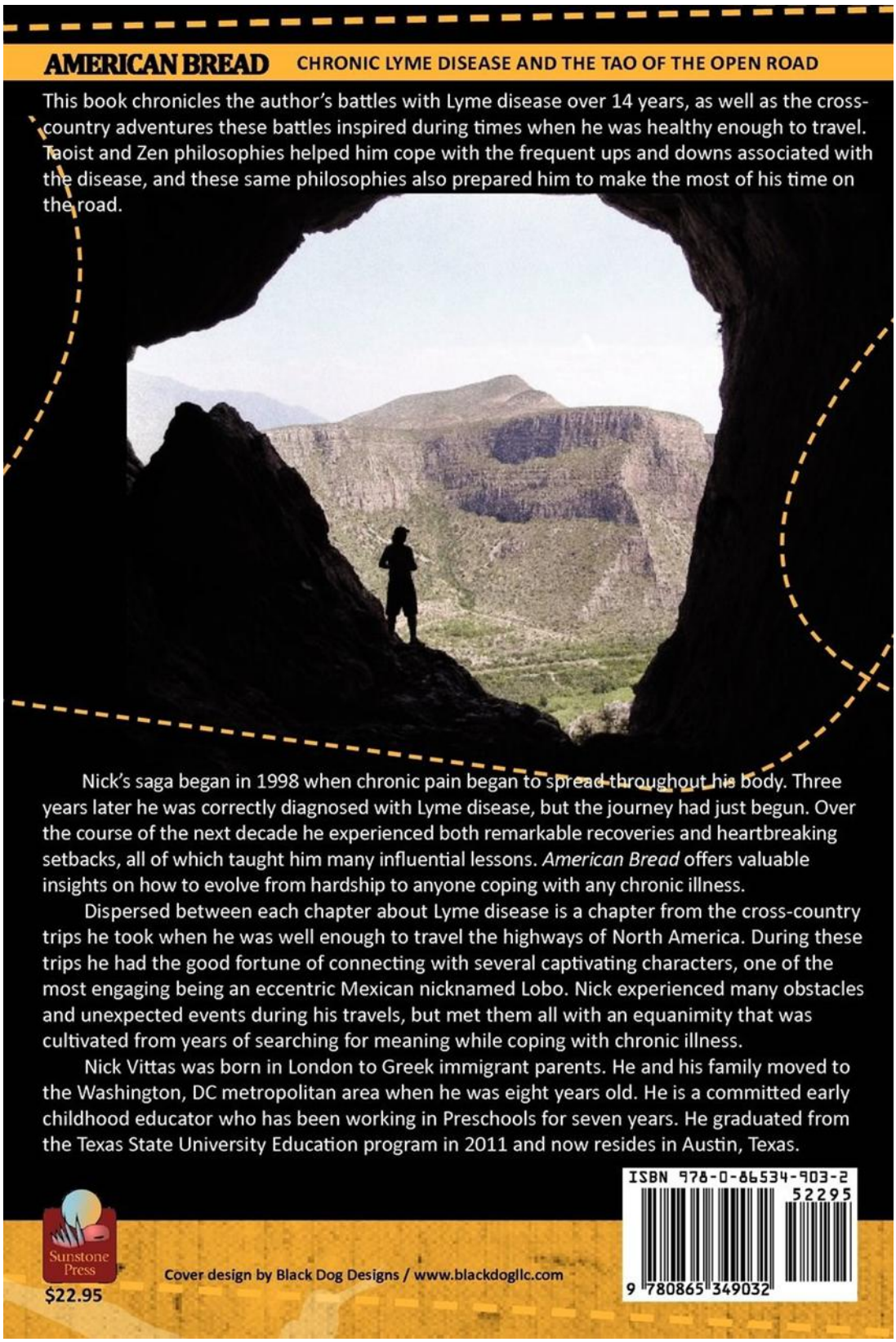
Shelley: What is the single most profound truth your journey with Lyme disease has taught you?

Nick: I've talked to a handful of people who are dealing with late stage Lyme and the common thread between all of our experiences is that the disease forced us to slow down and become immersed in the present. The disease has taught me a lot and changed me as a person a lot, and there are many facets of who I am today that I attribute directly to the disease, but the idea of living in the present and making the best of each moment in the moment is probably the most beneficial thing I've come away with from the experience.

Shelley: And finally, do you plan to write any more books?

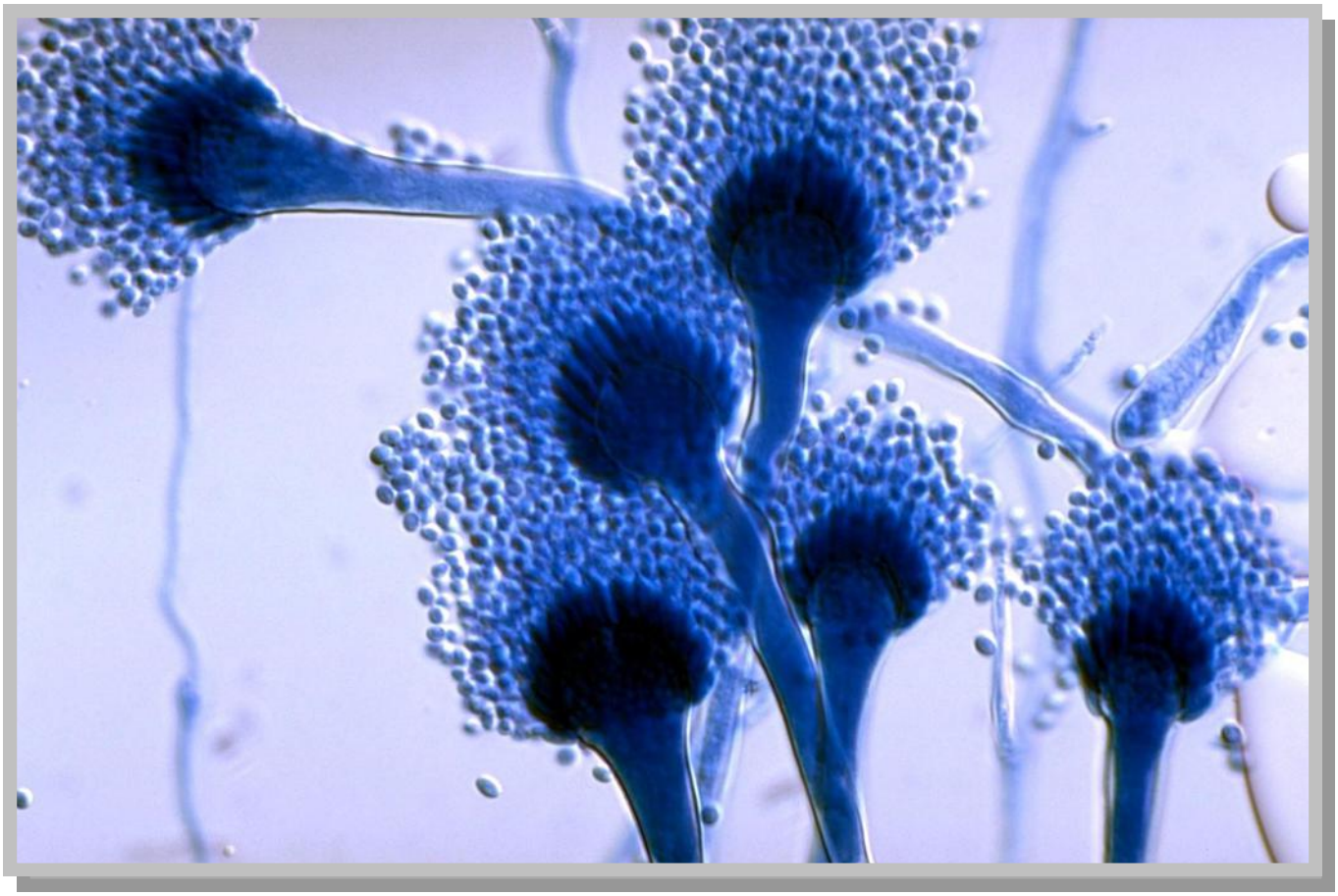
Nick: I am currently working on a novel centered around the mishaps of four South Austin eccentrics.

I am truly thankful you took the time to write American Bread: Chronic Lyme Disease and the Tao of the Open Road, and I am sure many others are as well. Thank you for taking the time to discuss your journey with me, Nick. It is greatly appreciated.



Mold and Mycotoxins: Often Overlooked Factors in Chronic Lyme Disease

by Scott Forsgren, with Neil Nathan MD and Wayne Anderson ND



"LYME" IS MORE THAN LYME ALONE

In the recently released book Why Can't I Get Better?: Solving the Mystery of Lyme and Chronic Disease by Richard I. Horowitz MD, a compelling argument is made that there is much more to chronic Lyme disease than Lyme alone. In fact, Dr. Horowitz unveils his "16-Point Differential Diagnostic Map" which suggests numerous "nails" in the foot which must be explored in order to regain wellness. He further expands the concept of "chronic Lyme disease" by suggesting MSIDS, or Multiple Systemic Infectious Disease Syndrome, as a more encompassing term for the multiple underlying factors involved in chronic illness.

In my personal experience recovering from Lyme disease after a tick bite in 1996 in Northern California, the journey has been one of uncovering many stones and addressing numerous layers of issues that were impacting my health. While *Borrelia, Bartonella, Babesia, Ehrlichia,* and many other microbial factors did play a role, it was not until I read the book "Mold Warriors" by Ritchie Shoemaker MD in 2006 that I considered the possibility of mold as another key part of the systemic body burden that had unknowingly made me ill for so many years.

Upon further evaluation, it was determined that I had been living in an apartment for nearly ten years that was contaminated with numerous molds including *Stachybotrys*, better known as “toxic black mold”. Removing myself from this constant, daily exposure to an environment that was not conducive with my recovery was an important step to take. Moving to a safer environment was one of the best things that I did as part of my journey back to health. I do not think I would be where I am today if I had not discovered and addressed this ongoing, toxic environmental factor that was contributing to my then poor state of health.

Exposure to mold in this water-damaged apartment in Miami, FL was the beginning of one young lady’s long struggle with chronic illness. Most of the time, molds are not this readily visible, but they can be equally damaging to the genetically susceptible that are exposed.

The connection between those struggling with chronic Lyme disease and ongoing exposure to toxic molds and mycotoxins is quite clear. Dr. Wayne Anderson has found that exposure to Lyme disease can make one more susceptible to mold illness, and vice versa; exposure to mold can make one more susceptible to Lyme disease. Both have the potential to affect the immune system and make the other more difficult to treat.

Dr. Neil Nathan has found mold toxicity to be a big piece of the puzzle in a very significant portion of patients with chronic Lyme disease. Lisa Nagy MD has suggested that many Lyme patients have a damaged immune system resulting from mold or pesticide exposures and that a focus on Lyme and co-infections may not always be the right focus.

One of the downsides of “chronic Lyme disease” is that Lyme often becomes the focus of treatment when, in fact, it may not be the dominant stressor that the body is burdened by. The intent behind this article is to suggest a more expanded view of chronic Lyme disease and to consider that both environmental exposures to toxic molds and the production of mycotoxins resulting from fungal colonization in the body can be significant issues in terms of symptom presentation; as well as both the severity and duration of the illness.

WHAT ARE MOLDS & MYCOTOXINS?

Mold and yeast are both different types of fungi. Molds are multicellular fungi and grow in filamentous hyphae, or long thread-like branches. They produce airborne spores, and are often quite colorful. In nature, molds are the recyclers of organic waste. While they are closer to plants than animals, they cannot undergo photosynthesis and thus rely on

organic matter for nutrition. They reproduce using both sexual and asexual methods.

Yeasts are single-celled microscopic fungi that are round or oval in shape and are generally colorless in appearance. They reproduce asexually via mitosis or budding. Yeasts are often used in fermentation of alcoholic beverages such as wine and beer and are used in baking. Some yeasts, such as *Candida albicans*, can be opportunistic infections in humans.

Mycotoxins are toxic chemicals produced by both molds and yeasts. They are believed to be used by fungal organisms as a protective mechanism; as a way to stake out their territory and to allow for further proliferation of the fungi. Additionally, within a host, they may be used by the fungi in order to weaken host defenses in support of persistence of the fungal organisms.

The environment in which the fungi live may be directly correlated to the output of mycotoxins. The more threatened the fungi are by the surrounding environment, the more they may utilize mycotoxin production as a protective weapon. Mycotoxins are not essential for the fungi to maintain their existence, but they do provide a competitive advantage. In some cases, humans get caught in the crossfire.

Mycotoxins in the body may be the result of external exposure to molds or internal, colonizing fungal organisms. They are generally found intracellularly and may be stored in body fat, myelin, tissues, organs, and other body sites.

While there are hundreds of different mycotoxins that have been discovered, some of the more common ones include aflatoxin, ochratoxin, citrinin, ergot alkaloids, patulin, fumonisin, trichothecene, and zearalenone. The focus of this article will be on aflatoxin, ochratoxin A, and trichothecene given that these can be readily measured via laboratory testing performed on a urine sample; providing a useful tool for practitioners working with patients with mold -associated illnesses.

Ongoing mold and mycotoxin exposure can be a very serious issue creating illness in the genetically susceptible. Sadly, the importance of evaluating for the potential of mold illness and taking appropriate corrective actions is often overlooked by many practitioners and patients alike.

SHOEMAKER'S MOLD CONTRIBUTIONS

Ritchie C. Shoemaker MD deserves tremendous credit for being the voice that brought mold illness to our awareness. His "Biotoxin Pathway" and treatment protocol have been instrumental pieces of the puzzle for many struggling with chronic biotoxin illness. Biotoxins are toxins created by living organisms. Mycotoxins are a subset of biotoxins and are produced by fungal organisms.

Visual Contrast Sensitivity (VCS) testing is often a very useful biotoxin screening tool that can be performed online. Mycometrics ERMI (Environmental Relative Moldiness Index) is arguably one of the best evaluation tools for the presence of mold in an indoor environment. Numerous lab tests were brought to our attention by Dr. Shoemaker's work including HLA testing, which looks for genetic predispositions to various biotoxin illnesses, and markers such as TGF-β1, C4a, C3a, MSH, VIP, VEGF, MMP-9, and others. The information that a trained practitioner can ascertain from the results of these tests is significant in their work to guide a biotoxin-illness patient back to a higher level of health.

Shoemaker's (pictured below) "Biotoxin Pathway" & treatment protocol have been instrumental pieces of the puzzle for many struggling with chronic biotoxin illness.

Cholestyramine is used in many with Lyme disease and mold illness as a direct result of Dr. Shoemaker's discoveries. Losartan, VIP nasal spray, and other useful therapeutic options have been introduced to biotoxin-illness sufferers through his work.

Dr. Shoemaker's approach has benefited and will continue to benefit many suffering with otherwise unexplained illnesses. No article on the topic of mold illness would be complete without a mention of his important contributions, and while not the focus of this article, his work has been life changing for many; myself included. More information about his protocol, his books (*Mold Warriors*; 2005, *Surviving Mold*; 2010), and the recently introduced doctor certification program can be found on his web site. Several integrative practitioners now incorporate a combination of the Shoemaker Protocol with several of the other options discussed in this article.

MOLD & MYCOTOXIN SYMPTOMS & ASSOCIATED CONDITIONS

Symptoms produced in humans as a result of mold and mycotoxin exposure are widely varied and may range from no response or simple allergy to cancer or even death.

"Symptoms can be caused by mold allergy, mold colonization (or infection), or mold toxicity, or a combination of these. Until Dr. Shoemaker raised awareness around the toxicity component, we had focused exclusively on allergy and infection. It is the understanding that mold toxicity, with its marked, uncontrolled outpouring of inflammatory cytokines, produces the same wide array of unusual symptoms that we see in Lyme disease and its co-infections that has dramatically improved our ability to diagnose and treat a large subset of patients that had been previously struggling to get better," said Dr. Neil Nathan.

The symptoms may be dependent on the types of molds and mycotoxins, the duration of the exposure, and the overall health of the exposed person. Mycotoxins damage the immune system and may make one more sensitive to bacterial endotoxins found on the outer membrane of bacterial cell walls. With an increased sensitivity, the body's response *to Borrelia burgdorferi*, the causative agent of Lyme disease, and co-infections may be heightened and lead to a further exacerbation of overall symptoms.

Mycotoxins can cause coughing, wheezing, asthma, shortness of breath, sneezing, burning in the throat and lungs, and sinusitis. Memory loss, confusion, brain fog, and cognitive impairment may present. Vision problems, eye irritation, headaches, swollen lymph nodes, ringing in the ears, dizziness,

hearing loss, fatigue, muscle weakness, multiple chemical sensitivities, joint pain, muscle pain, irregular heartbeat, seizures, depression, anxiety, irritability, psoriasis, skin irritation, fever, chills, sleep disorders, coagulation abnormalities, and numerous other symptoms have all been associated with mycotoxin exposures.

According to Dr. Joseph Brewer at the 2013 ILADS annual meeting, mycotoxins bind to DNA and RNA, alter protein synthesis, increase oxidative stress, deplete antioxidants, alter cell membrane function, act as potent mitochondrial toxins, and alter apoptosis.

Molds and their mycotoxins may negatively impact the endocrine system including sex hormones, thyroid function, and adrenal function. Mold exposure may lead to food allergies and chemical sensitivity. In some cases, POTS (Postural Orthostatic Tachycardia Syndrome) may be mold-induced.

Fibromyalgia and Chronic Fatigue Syndrome have both been associated with mycotoxin exposure. Other conditions that may have a mycotoxin component may include various cancers, diabetes, atherosclerosis, cardiovascular disease, hypertension, autism, rheumatoid arthritis, hyperlipidemia (elevated cholesterol), inflammatory bowel disease, Lupus, Sjögren's syndrome, Crohn's disease, Multiple Sclerosis, Alzheimer's disease, Raynaud's Disease, kidney stones, vasculitis, and others.

It has been suggested that elevated cholesterol may be a protective mechanism of the body as a response to mycotoxin exposure. Statin drugs have antifungal properties, and one of the mechanisms through which they may help to lower cholesterol is through the reduction of mycotoxins as systemic fungal populations are reduced.

In those with chronic Lyme disease, it is difficult to separate the symptoms associated with mold and mycotoxin exposure from those associated with Lyme disease or even those associated with heavy metal toxicity. The overlap is significant, and as a result, all of these items must be explored as symptoms believed to be associated with Lyme disease may not be entirely the result of Lyme itself.

MOLD & MYCOTOXIN TESTING

The evaluation and treatment of mold and mycotoxin-related illnesses has garnered attention with doctors that treat patients with chronic Lyme disease. New and evolving options for practitioners to diagnose and treat their patients have emerged over the past several years.

As an initial screening option, mold plate testing can be helpful in providing someone with visible proof that there may be an issue in the living environment. Mold plates are often available at local hardware stores or can be purchased through companies such as Tennessee Mold Consultants, Immunolytics, or EMLab P&K.

The Mycometrics ERMI has been a highly valuable tool for many practitioners and patients alike in evaluating the potential of ongoing mold exposure in the indoor environment. Several labs perform ERMI testing, but Dr. Shoemaker's work is based on the ERMI performed by Mycometrics. It analyzes a collected dust sample for the presence of molds associated with water-damaged buildings using quantitative PCR and compares these values to other common indoor molds to determine the ERMI score. The score is then evaluated in

order to determine if the living environment is likely safe and conducive to one's recovery. If one has a mold-susceptible HLA DR type (discussed later), an ERMI score below 2 is generally desired. There is a more recent test called HERTSMI-2 available from Mycometrics which is less extensive but may be helpful to determine if a previously contaminated environment is safe for one to re-enter after remediation.

Air sample tests can be used when looking for molds, but Dr. Shoemaker has been very clear that these are of limited value. Air samples represent a snapshot in time and do not show the complete picture. It is not uncommon for air sample testing to return negative results in the same environment where an ERMI is highly positive. 99% of the toxic substances in a water-damaged building are carried by mold fragments that are too small to be detected by air testing or mold plates.

Stachybotrys is the most famous of the pathogenic molds. It is known as "toxic black mold", and it produces a mycotoxin called *trichothecene*. *Stachybotrys* is rarely found outdoors. Given that it is not readily airborne, air sampling is generally not an effective tool for this particular mold; thus dust sample testing using the ERMI may be a better option.

While mold plates and ERMI testing are often helpful options for evaluating the indoor environment for the presence of mold, they do not consider the person living in the environment and whether or not they are impacted.

Antibody testing for various molds can be performed. ALCAT offers a Molds Panel which looks for intolerances and sensitivities to about 20 different molds using a blood test. Lisa Nagy MD has discussed Alletess Medical Laboratory for IgG antibody testing to various molds. When these tests are positive, this could be explained by allergy or sensitivity response to exposures in the environment or could also potentially be the result of a colonization of fungal organisms in the body that the immune system is responding to.

RealTime Laboratories in Carrollton, Texas introduced a mycotoxin panel in 2006 which evaluates a patient's urine for the presence of three different mycotoxins; namely *aflatoxin, ochratoxin A,* and *trichothecene.* This represents an exciting option for evaluating the mycotoxin burden in a patient. This will be discussed later in this article.

RECENT MOLD & MYCOTOXIN PUBLICATIONS

In April 2013, Dr. Joseph Brewer published "Detection of Mycotoxins in Patients with Chronic Fatigue Syndrome" in *Toxins*. The study looked at the Chronic Fatigue Syndrome (CFS), or Myalgic Encephalomyelitis (ME), population to determine if there might be a connection between the condition and mycotoxin exposure from water-damaged buildings. Healthy controls with no known toxic mold exposures were compared to those with CFS/ME. Urine samples were evaluated for the presence of three distinct mycotoxins; namely *aflatoxin, ochratoxin A,* and *trichothecene.*

Of 112 samples assayed, 104 (93%) revealed the presence of at least one of the three mycotoxins. The most commonly identified was *ochratoxin A* (83%) followed by *trichothecene* (44%) and then the combination of *ochratoxin A* and *trichothecene* (23%). None of these were observed in the population of 55 healthy controls. Testing of the environment in many of the CFS patients revealed mold and mycotoxin exposure. The conclusion of the study was that mycotoxins could be a cause of mitochondrial dysfunction in the CFS population which may serve as

an explanation for fatigue and other symptoms.

A second publication entitled “Chronic Illness Associated with Mold and Mycotoxins: Is Naso-Sinus Fungal Biofilm the Culprit?” was published in Toxins in December 2013 by the same lead author. This publication built on the earlier work by looking at potential sources of ongoing mycotoxin exposures that may be involved in chronic illness. It suggested that the sinuses were the most likely colonizing site for molds leading to the production of internal mycotoxins on an ongoing basis. Essentially, once molds colonize in the body, even if one is removed from the environment where water-damage may have led to ongoing mold and mycotoxin exposure, mycotoxins are produced internally which serve as a constant source of additional toxic body burden. It is as if there is a mycotoxin factory open for business 24 hours a day, 7 days a week with the end result being a toxic, polluted body.

It has been known for some time that people with chronic rhinosinusitis harbor numerous fungal organisms. Of the fungal organisms that have been observed such as *Aspergillus, Chaetomium, Fusarium, Penicillium,* and *Trichoderma,* many of these have the potential to produce mycotoxins. The publication notes that in one study, both those with sinusitis and controls had equal prevalence of fungal organisms and that essentially everyone has nasal fungi. However, mycotoxins were not found in nasal washing from healthy controls; though they were in those previously exposed to a moldy environment.

Fortunately, the publication continues to suggest approaches that have resulted in protocols which attempt to resolve the ongoing fungal organisms which may be at the core of the ongoing mycotoxin burden. Amphotericin B has been used intranasally with observed clinical improvements, and oral antifungals are often used concurrently. Intranasal therapy must also consider the likely presence of biofilms which protect the mycotoxin-producing organisms from antifungal therapies. In one study of 25 people with evidence of urinary mycotoxins, ninety percent had dramatic decreases in symptoms with targeted treatment.

As with many antimicrobial therapies, it has become more and more evident that the role of biofilms must be considered in order to maximize the therapeutic benefits. This polysaccharide sludge layer protects the organisms which live within it. Different types of organisms, such as fungi and bacteria, form a community within the biofilm which conveys

Fungal organisms such as *Aspergillus* (featured above), *Chaetomium, Fusarium, Penicillium,* and *Trichoderma* have the potential to produce mycotoxins.

conveys considerable protection to these organisms and reduces the amount of an antimicrobial agent that actually makes it to the intended target. Biofilms make chronic infection more possible and treatment strategies more difficult. NAC and EDTA were mentioned in the article as potential tools for disrupting the biofilm layer thus making the fungal organisms more susceptible to antifungal therapies.

At the ILADS 2013 annual meeting, Dr. Brewer shared that Chronic Fatigue Syndrome consists of immune dysregulation, abnormal cytokine profiles, autoimmunity, and immune deficiency. Cognitive issues, central nervous system issues, endocrine abnormalities, oxidative stress, and mitochondrial dysfunction are common hallmarks of CFS. The overlap between the key issues in CFS and those that can be attributed to mycotoxins is notable.

GENETIC PREDISPOSITION TO MOLD & MYCOTOXIN ILLNESS

Practitioners such as Dr. Neil Nathan and Dr. Wayne Anderson integrate the best of the Shoemaker Protocol with the recent findings by Dr. Joseph Brewer and their own clinical experience into a "best of all worlds" integrative approach.

Dr. Wayne Anderson has said many times that if he could only run one test, the HLA DR panel would be the one that he would choose because it provides him the most useful information from any single test. HLA stands for Human Leukocyte Antigen and is found on the 6th chromosome; they are immune response genes involved in immune system recognition of an antigen. With the HLA DR results, one can look at the various combinations, which Dr. Shoemaker has identified and published, to determine if a patient is more likely to have a biotoxin illness from mold, from Lyme disease, or from other sources of biotoxins.

The degree to which one is made ill by mold and mycotoxins has been associated with one's genetic predisposition. In the overall population, the inability to adequately recognize and excrete mold toxins is about 25%. However, in those with chronic illness, this number is much higher.

When one's immune system has an inability to recognize and tag a biotoxin, the body is unable to effectively identify and remove these toxins from the system. Mycotoxins may be excreted via the kidneys into the urine or via the liver and bile into the feces. Further, enterohepatic recirculation of toxins is a common problem. As toxins are released in the bile and move through the gastrointestinal system, they are reabsorbed rather than excreted as they are not recognized as harmful by the body. As a result, a person becomes and remains highly toxic unless the practitioner intervenes with an appropriate treatment protocol.

Not all people with chronic mold and mycotoxin-associated illness will test positively with the RealTime Laboratories mycotoxin panel. There may be cases where it is very clear that the person has an issue with mold, but the test may not identify mycotoxins. This is not to suggest that the test is not of value, but rather that the practitioner needs to know how to prepare the patient to optimize the results. In a patient with an HLA DR type associated with mold biotoxin illness, Dr. Anderson has found an association with their compromised ability to excrete mycotoxins via the urine. More specifically, some patients need to have their urine tested after a sauna session, which can mobilize mold toxins, or a challenge test with glutathione in order to demonstrate that they do, indeed, have a high level of mycotoxins in their

system. These patients require a treatment protocol that supports the excretion of mycotoxins in order to optimize the test results.

Everyone has two HLA alleles; one from the father and one from the mother. Four combinations are known to be the primary mold-susceptible types (7-2/3-53, 13-6-52 A/B/C, 17-2-52A, 18-4-52A). Dr. Anderson has found that when only one of the alleles has a primary mold-susceptible pattern, there may be a milder illness presentation associated to the mold and mycotoxin issues. This does not mean that the person won't have issues with ongoing mold exposure, but the treatment itself is often easier and the immune system often responds more appropriately when the body is dealing with this layer of the illness.

In contrast, a person with two mold-susceptible alleles will generally present with a more significant illness. They will be more likely to have a higher burden of intracellular mycotoxins. Until the detoxification systems are supported and working more effectively, these toxins may remain stuck inside the cells and thus may not be present when attempting to identify mycotoxins in the urine. Dr. Anderson has found that the more one's genetic predisposition leans toward mold-associated biotoxin illness, the more additional detoxification support will be needed; further, more aggressive antifungal therapies may be needed to treat any molds that may be colonizing in the body. He has observed that the likelihood of colonization and how deeply engrained in the system the mold issue may be can also be dependent on how predisposed the person is to mold-related illness based on their genetic predisposition.

In those with a single allele defect, the colonizing molds will attempt to grab and expand their territory in the body, but the immune system is still able to control this expansion somewhat and the surface area impacted will be mild to moderate. In those with a double allele defect, meaning that both HLA DR patterns are mold-susceptible, there is often much more significant colonization. These same people often had more frequent ear infections as children, developed asthma as a teenager, experience Irritable Bowel Syndrome with bloating and gas, and commonly have sinus infections. Females may have more common vaginal yeast infections and a higher propensity toward interstitial cystitis. There is far less ability for the body to respond to colonizing molds and to detoxify from their mycotoxins when a double allele defect is present.

Dr. Anderson's observation has been that those with a single mold-associated allele are often more easily treated for colonization. The treatment is more difficult than in a person with no mold-associated defects, but far easier than in a person with a double mold allele defect. In those with a double defect, a significant focus on detoxification is critical.

Beyond mold-susceptible or Borrelia-susceptible HLA DR types, there are the multisusceptible HLA DR types (4-3-53, 11/12-3-52B, 14-5-53B). With respect to the mold component of the illness, Dr. Anderson has found that the multisusceptible HLA types are generally easier to treat than those with primary mold-susceptible patterns. His observation has been that those with the multisusceptible types are more impacted by formaldehyde, petroleum-based chemicals, solvents, pesticides, and insecticides. These then become the focus of detoxification. In Dr. Anderson's world,

detoxification is often the most important aspect of treatment.

Dr. Anderson has found that if one is born with a predisposition to mold biotoxins that was activated early on in life and later was infected with Lyme and associated co-infections, Lyme disease may be layered on top of the underlying fungal issue, and the fungal issue may not be what the person needs to address at that time. If the Lyme-related infections are what is drawing the attention of the immune system at that moment, it may only be after this layer is addressed that the fungal symptoms appear. In other words, some patients can have a significant mold load, but the practitioner may not be able to address that issue until the body is no longer being provoked by the Lyme layer.

Dr. Anderson has also observed that there can be seasonal influences that impact the primary layer that the body is dealing with. The immune system may have prioritized Lyme or a particular co-infection and may be ignoring underlying fungal issues; this can then flip in the winter when the rain hits. The increased exposure to molds in the winter may lead to the reprioritization of the fungal layer by the immune system. At that point, Dr. Anderson may need to shift from treating the Lyme-related issues to treating the mold issue. If mold allergy is present, this may also be seasonally influenced. The protocols are dynamic and must constantly be adjusted based on several factors such as the environment, new exposures, and what the immune system deems as the dominant issue or pathogen.

While HLA DR testing is often very helpful, it is important to note that this is a genetic potential but does not represent whether or not the specific genes have been expressed or not. There may be additional gene correlations that are equally important that simply aren't yet known. So, while this is often a very useful guide, a less than optimal HLA DR result is far from the end of the story in terms of one's potential for recovery.

REALTIME LABORATORIES MYCOTOXIN TESTING

While RealTime Laboratories has offered their mycotoxin testing since 2006, it has only recently become better known in the Chronic Fatigue Syndrome and chronic Lyme disease communities largely due to recent publications by Dr. Joseph Brewer. The test looks for *aflatoxin, ochratoxin A,* and *trichothecene.*

While the test has been a very positive addition to many practitioner's arsenal of diagnostic tools, special consideration must be given in order to optimize the results. Mycotoxins are generally stored intracellularly. In order for the toxins to be excreted in the urine, they have to leave the cell. In some of the sickest mold patients, if the mycotoxins are sequestered inside of the cells, the level of mycotoxins in the urine may be very low and thus the test results may be negative. While the molds themselves live outside of the cell,

Case Study

Patient is a 37 year-old woman with the diagnosis of Chronic Fatigue Syndrome who had not responded to any previous treatment. Testing for Lyme disease was negative. In May 2013, *ochratoxin* was 1.4 ppb, *aflatoxin* was 0, and *trichothecene* was 0.25 ppb. On Cholestyramine, chlorella, clay, and charcoal alone, she improved 70%; reporting that she felt better than she had in years. Upon retest, she showed no *ochratoxin* or *aflatoxin*, but her *trichothecene* level increased to 0.4 ppb which may be an indication of further detoxification underway. She was then placed on Sporanox with Amphotericin B and EDTA nasal sprays and will be seen soon for follow-up. *Source: Dr. Neil Nathan*

mycotoxins are intracellular poisons and they must be released in order to be excreted from the body. Mycotoxins are lipophilic and are attracted to fat. One must open the detoxification pathways and facilitate the body's ability to release the stored toxins.

Prior to performing the urinary mycotoxin panel, the practitioner must ensure that the patient is able to detoxify in order to optimize the results. Some practitioners such as Lisa Nagy MD have found the use of far infrared sauna (only when tolerated and not in patients with POTS or untreated adrenal insufficiency) prior to the urine collection to be very helpful.

Both Dr. Neil Nathan and Dr. Wayne Anderson have observed some patients that tested negative after a FIR sauna challenge that later tested highly positive when supporting detoxification with liposomal glutathione. These patients had far more issues clinically than what the test showed, and using liposomal glutathione for a week or more prior to the test collection can assist in opening up the cell membranes and facilitating excretion of stored mycotoxins. Dr. Nathan has also observed marked increases in the mycotoxin levels after incorporating binders into a patient protocol. As antifungal therapy is initiated, additional mycotoxins may be released into the system which may result in higher levels of mycotoxin excretion. As the immune system and cellular health improve, this can further increase the level of mycotoxin excretion.

Dr. Anderson has found the RealTime mycotoxin testing to be very reliable and values the quantitative nature of the results. He often performs the test on patients where mold-illness is suspected or where their HLA DR pattern leans toward mold-associated biotoxin illness. It provides him with an insight as to how close to the surface the mold and mycotoxin components of the broader illness may be. In a chronically ill patient, the mold and mycotoxin component of the illness is often one of many layers. An attempt to look for mycotoxins in the urine is often the most productive when this layer comes to the surface.

While urine is the easiest specimen to obtain, the testing can be done on tissues, sputum, nasal secretions, and bronchial lavages. It is difficult to find mycotoxins in the blood as the macrophages pick these up and move them quickly into tissue. Testing urine gives an overall picture of mycotoxins anywhere in the body; whereas nasal secretions would only reveal localized mycotoxin production. Thus, urine is the more widely used as it provides insights relative to the broader body burden of mycotoxins.

One of the advantages of the RealTime testing is that after the initial panel has been run for a patient, subsequent testing to track progress of treatment is offered at a lower price for 18 months from when the initial test was performed.

In Dr. Nathan's experience with the RealTime testing, a very high percentage of his unusually compromised patient population show some degree of mycotoxin burden. Some patients may not have current environmental mold exposures, but may have had an exposure years earlier which led to ongoing colonization of the sinuses, gut, skin, lungs, or possibly dental cavitation areas.

MOLD & MYCOTOXIN ILLNESS TREATMENT

Both Dr. Neil Nathan and Dr. Wayne Anderson have worked with patients with mold and mycotoxin-associated illness for several years. They are intimately familiar with the Shoemaker Protocol and have used it with patients with positive results. While the Shoemaker Protocol is not the focus of this article and is not covered in the approach outlined here; a combination

a combination of approaches may be used. With the recent publications from Dr. Joseph Brewer on the potential for colonization of fungal mycotoxin -producing organisms, they have incorporated a treatment approach based on these newer findings.

There are three main steps:

- *Removing the Exposure*
- *Binding Internal Mycotoxins*
- *Treating Colonizing Molds In the Body*

The first and extremely critical step in treatment is to ensure that there are no ongoing environmental exposures. This includes evaluating any environments where one regularly spends time such as the home, office, or school locations. Mold plates can be a reasonable initial screening option. Mycometrics ERMI testing is often very helpful, and working with a skilled environmental engineer may also prove beneficial. In order to optimize the treatment outcome, **removing the exposure** is key.

The second step is to consider **binding internal mycotoxins.** As previously discussed, one's genetic predisposition may play a role in their ability to efficiently excrete mycotoxins from the system. In most chronically ill people, there are impairments in the detoxification system. Having appropriate binders on board minimizes this issue as the toxins are then bound and more effectively excreted from the system. Binders should be started slowly and worked up over time in order to avoid an exacerbation of symptoms which can occur when too many toxins are being released in the system at once.

Cholestyramine has been used for biotoxin illness for years based on the work of Dr. Shoemaker and is often an excellent binder. It is believed by some to be a better option for *ochratoxin* than for *aflatoxin* or *trichothecene.* Welchol is another option that can be used as an alternative to Cholestyramine for those that cannot tolerate it; though it is not as effective. Cholestyramine is best obtained from a compounding pharmacy in order to avoid sugar (which feeds yeast that produce more mycotoxins) and artificial sweeteners. Commercially available Cholestyramine from conventional pharmacies may include large amounts of sugar or artificial sweeteners. It is generally taken 30 minutes before a meal and no other supplements or medications are taken for at least 90 minutes after the meal in order to avoid reduced absorption of these items.

For *aflatoxin* and *trichothecene*, charcoal and bentonite clays are often the most beneficial binders. Calcium D-Glucarate may support removal of *trichothecene*. Depending on the results of the RealTime Laboratories mycotoxin testing, both Cholestyramine and additional binders may be used concurrently. Both charcoal and clays should be taken away from foods and other medications.

Chlorella is another useful binder that may be gentler when initially embarking on a mycotoxin reduction protocol. Other binders that may be useful include: zeolites, chitosan, modified citrus pectin, apple pectin, beta-sitosterol, glucomannan, diatomaceous earth, and others.

Dr. Anderson often selects a binder in relation to how frequently the patient has a bowel movement. Constipation is the enemy of any detoxification protocol. If the patient tends to be more constipated, he will generally avoid the use of Cholestyramine or charcoal and will instead consider chlorella or modified citrus pectin. Modified citrus pectin adds fiber which often enhances bowel movements. If one tends to have diarrhea, Cholestyramine or charcoal may be perfect options.

be perfect options.

A combination product that some practitioners have found helpful is Advanced Naturals TOXIN AbsorbMax which includes guar gum, glucomannan, activated charcoal, and citrus and apple pectins in one formula. A number of practitioners have found Supreme Nutrition Takesumi Supreme (carbonized bamboo) to be a beneficial binder. Pure Encapsulations CholestePure has been useful.

Other substances that have been found helpful in dealing with mycotoxins include alpha lipoic acid and liposomal glutathione. Glutathione is a master detoxifier and one of the most powerful antioxidants in the body and has been shown to be very helpful in the detoxification of mycotoxins. It is involved in modulating the immune system and reducing inflammation. It supports the body in the removal of heavy metals. Dr. Nathan cautions, however, that for some patients, glutathione may provide negative feedback to the body's ability to methylate and should be used carefully. There are several excellent oral liposomal products that may be very helpful for supporting mycotoxin detoxification. These include QuickSilver Scientific Therasomal Glutathione, Researched Nutritionals Tri-Fortify Orange, Bulletproof Upgraded Glutathione Force, and ReadiSorb Liposomal Glutathione. NAC may be used as a glutathione precursor.

ReadiSorb consulting physician Timothy Guilford MD has researched the link between mycotoxins and glutathione and has found that mycotoxins block the formation of glutathione in the body. They interfere with the Nrf2 pathway and create an environment that allows them to persist. Glutathione levels are often low when TGF-β1 is elevated; which is common in mold patients. Low grade fungal colonization in the sinuses can slowly deplete glutathione. Chronic infections are better able to persist in the body when glutathione is depleted as glutathione is involved in intracellular killing of infections; thus liposomal glutathione can be a very powerful weapon in helping the body to deal with both infections and mycotoxins.

Supporting the body with drainage remedies that facilitate optimization of the detoxification systems and organs is another helpful strategy in removing toxins from the system. The liver, kidneys, and lymphatics are prime targets for this type of support. Dr. Nathan incorporates homeopathic drainage remedies from Pekana such as RENELIX (kidney support) and ITIRES (lymphatic support); especially in patients that have strong reactions to other attempts to detoxify the system and have a compromised ability to detoxify. He finds Beyond Balance TOX-EASE to be very helpful for this purpose.

Dr. Anderson follows a very specific order in approaching detoxification. First, the gastrointestinal system must be considered as the patient cannot adequately detoxify if they are constipated. Next, the liver, gallbladder, kidneys, and lymphatic system must be supported. Finally, toxins in the cells must be detoxified. However, you cannot start by attempting to dump intracellular toxins if the routes of elimination are not open or you will make the patient more ill. “You simply add more traffic to the traffic jam”, says Dr. Anderson.

Sweating via far-infrared sauna therapy is another excellent supportive detoxification modality that can be very effective in helping the body to rid itself of mycotoxins. In fact, the output of urinary mycotoxins has been shown to be higher after a sauna session and this is a technique that is often used in order to maximize the mycotoxins identified through urinary mycotoxin testing.

The final step of the mycotoxin treatment protocol is **treating colonizing molds in the body.**

Mold does not technically live inside the body except in conditions such as end stage cancers or HIV. Molds have the potential to colonize those areas that are considered to be outside membranes of the body meaning they are open to the external environment and separated from the blood by the epithelium which acts as a barrier. Potential sites of colonization in the body for mycotoxin-producing fungi are the sinuses, gut, bladder, vagina, and lungs. Surprisingly, the lungs are often the least affected as they contain lysozomes that serve as a protective mechanism against colonization. While the fungal colonization itself generally does not occur inside the body, the toxins that are produced by these organisms can enter the body and the intracellular compartments of the cells. Treatment for colonization of molds focuses primarily on the sinuses and gastrointestinal system.

For treatment of fungal organisms in the sinuses, one of the emerging options is the use of nasal Amphotericin B which helps to kill fungi used in conjunction with EDTA to dissolve biofilms. Biofilms are known to make treatment of chronic infections more difficult as they serve as a protective barrier for the organisms which make it far more difficult to get the antimicrobial agents to where they need to go. Amphotericin B and EDTA are in generally used in separate preparations with Amphotericin B being used in the morning and EDTA being used in the evening or vice versa. Nasal Itraconazole may be explored in some patients. The agents are delivered using an atomizer called the NasaTouch (available from ASL Pharmacy) which helps to deliver the compounds deep into the sinuses.

Treatment is started very gently as one can have a very strong response which may make it difficult to tolerate the therapy if not done properly. Over time, the dosages are increased but only to the level that the patient can comfortably tolerate. A thick yellow or green mucous discharge has been reported in some patients and is believed to be a good sign.

As the fungal organisms die, they can create significant inflammation. There can also be an allergic response to the dead molds. The use of a nasal corticosteroid to help reduce inflammation and make the treatment more tolerable has been discussed, but steroids are often best avoided in those with chronic Lyme disease. Other options that have been explored include the use of glutathione as a nasal spray which can help to reduce the swelling and inflammation of the sinus tissues.

Other practitioners have used similar approaches but with different compounds such as the use of Nystatin both orally and in a nasal spray or the use of a nasal spray made with Ketoconazole, Triamcinolone (a corticosteroid), and Cromolyn.

Non-prescription nasal options that may be worth exploration include Physician's Standard Nasal Clear, Argentyn 23 Silver Hydrosol, ACS 200 Nasal Spray, Propolit Nasal Spray (propolis), Seagate Olive Leaf Nasal Spray, Happy Sinus with Silver, NutriBiotic Grapefruit Seed Extract Nasal Spray, and CitriDrops Nasal Spray. Dr. Nathan and Dr. Anderson have found that silver can often be a helpful adjunct treatment for those dealing with colonizing molds; especially in the sinuses.

In order to address fungal overgrowth in the gut, the first step is to consider and address the biofilms in the gastrointestinal tract. This is often initiated with Klaire Labs Interfase Plus or Beyond Balance MC-BFM. These are slowly increased and then

then followed by the addition of an antifungal. Itraconazole (Sporanox) is commonly used and again started slowly and increased as tolerated. Other useful agents may be Voriconazole (VFend), Capsofungin (Cancidas), Micafungin (Mycamine), or Posaconazole (Noxafil).

There are a number of herbal antifungal agents that may be considered such as Byron White Formulas A-FNG and Beyond Balance MYCOREGEN. Dr. Anderson has used A-FNG as a multi-purpose tool in that it both helps to support the body with removal of stored intracellular mycotoxins and serves to reduce fungal organisms in the body. He may use oregano oil or undecylenic acid.

The importance of having a strong detoxification program on board while attempting to reduce fungal populations is key to the success of treatment. A common symptom of under-supported detoxification while attempting to reduce the fungal colonization is depression. Metals and fungal organisms generally live in communities. As the fungal organisms are killed, this may release metals into the system. This is another reason why detoxification is so critical to consider as part of the broader treatment protocol.

Some practitioners have found coffee enemas to be a good option for mycotoxin detoxification; however, consideration should be given to the source of the coffee to ensure that additional mycotoxins are not being introduced into the system.

To summarize, the basic treatment model consists of removing the source of any environmental exposures, binding internal mycotoxins, and treating colonizing molds in the body in both the sinuses and gastrointestinal system.

MOLD, MYCOTOXINS, & CANDIDA

Candida overgrowth is another factor in systemic mycotoxin overload as these organisms produce mycotoxins within the body. Additionally, as antifungal therapies are implemented to reduce the burden of *Candida* in the body, the yeast can produce further mycotoxins in response to attempts to eliminate them. The more aggressively one attempts to rid the body of *Candida*, the more that the focus on detoxification should be increased in order to help remove any additional mycotoxins from the system. Mycotoxins produced by *Candida* include *gliotoxin* which are known to suppress the immune system.

Another common mycotoxin produced by *Candida* and other yeasts includes *acetaldehyde* which is a metabolic product of ethanol. It irritates membranes and damages the liver. It explains why some people with Candidiasis feel groggy or even drunk after eating sugar or carbohydrates which are then fermented in the gut by the yeast. *Acetaldehyde* can also negatively impact methylation.

In my discussions with Dr. Wayne Anderson, he has observed a connection between people living in the presence of mold from a water-damaged building and *Candida* overgrowth. Treating *Candida* is often far more difficult if the patient is still being exposed on an ongoing basis to other molds in their living environment. In a number of cases, Dr. Anderson has worked with patients that reported vaginal discharge associated with *Candida* infection shortly after moving into a moldy home. Living in an environment with ongoing mold exposure leads to immune dysregulation which allows *Candida* to overgrow in the body. Dr. Anderson has noted that abnormally high *Candida* antibodies are commonly found in his patients.

While *Candida* is technically a yeast and not a mold, , it does produce

mycotoxins which negatively impact health and thus needs to be considered in a treatment protocol. Fortunately, it responds to many of the same antifungal therapies that are used for the treatment of colonizing molds.

MYCOTOXINS & ELECTROMAGNETIC FIELDS

Another interesting consideration in the treatment of mycotoxin illness is one's level of exposure to electromagnetic fields. Dietrich Klinghardt MD, PhD has discussed research from Europe that has shown that molds react in a defensive manner when exposed to high levels of EMFs; in so doing they release up to 600 times more mycotoxins. EMFs led to faster proliferation of the molds themselves. Thus, implementing mechanisms which reduce ongoing EMF exposures may be a supportive intervention when dealing with systemic fungal colonization and mycotoxin-associated illness.

MOLD ALLERGY

Dr. Nathan and Dr. Anderson have each noted that one can have both mold toxicity as well as mold allergy. Each of these may need to be treated separately in order to fully address the broader mold illness. Immune therapies such as Low Dose Allergen (LDA) injections can be helpful in those presenting with an allergic response, or an overreaction of the immune system, to the molds.

Desensitization may be approached using oral, sublingual drops that are personalized to the specific patient. Some practitioners have used homeopathic remedies such as Allergena Mold Mix, bioAllers Allergy Treatment Mold/ Yeast/Dust, Professional Complementary Health Formulas Household Dust/Mold Allersode or Toxic Fungi-Mold Nosode, Energetix Myco-Chord, Physica Energetics Myco-Tox, and others.

Case Study

Patient is a 50 year-old woman who presented four years ago with Lyme disease, *Babesia*, and *Bartonella*. She did fairly well with antibiotic and herbal treatments realizing improved energy and cognition and fewer joint pains and headaches. Improvement was estimated at 70%; though she was not back to full health. In May 2013, urinary mycotoxin testing revealed *ochratoxin* 1.4 ppb, *aflatoxin* 1.4 ppb, and *trichothecene* at 2.34 ppb. She was treated with Cholestyramine, charcoal, and clay as binders along with nasal Amphotericin B/EDTA and oral Sporanox. In January 2014, she felt significant improvements in energy and cognition. Her headaches were virtually gone. Retesting showed *aflatoxin* was 0, *trichothecene* down to 0.05 ppb, while *ochratoxin* had increased to 3.64 ppb. The increase in *ochratoxin* may be the result of the antifungal therapies leading to an additional release of mycotoxins from dying fungi or the body's ability to better detoxify and excrete previously stored mycotoxins. Source: Dr. Neil Nathan

MYCOTOXINS IN FOOD

While food-borne mycotoxins may not be as significant as those from ongoing environmental exposure or persistent fungal colonization, food sources of mycotoxins are another consideration for those dealing with mycotoxin-associated illnesses. When someone is already burdened by an overload of toxins and a likely weakness in detoxification capacity, anything that can be done to further reduce exposure to additional toxins is a worthwhile consideration. Some have suggested that food allergies and leaky gut syndrome may be associated with the consumption of mycotoxins in foods.

Some of the more common sources of mycotoxin-contaminated foods include corn, wheat, barley, rye, peanuts, sorghum, cotton-

seed, some cheeses, and alcoholic beverages such as wine and beer. Sugar can both be contaminated with mycotoxins and can serve to feed mycotoxin-producing fungi that may already inhabit the body.

Other foods that may be impacted by mycotoxins include oats, rice, tree nuts, pistachios, Brazil nuts, chillies, oilseeds (seeds that yield oil), spices, black pepper, dried foods such as dried fish and dried fruits, figs, cereals, coffee, cocoa, beans, peas, and breads.

Fruits such as apples, pears, grapes, apricots and their juices may be a source of mycotoxins. Coconut oil, while delivering many health benefits, is a potential concern if sourced from dried coconuts; thus purchasing a high quality product may be important.

Milk, eggs, and meat may be indirectly contaminated through mycotoxin-contaminated feed that is fed to the animals. When animals ingest contaminated feed, some toxins can remain in the resulting food products which we then consume. This is another reason that grass-fed meats are a superior option as mycotoxins rarely grow on grass and thus, the concentration of mycotoxins in the fat of grass-fed animals is generally lower than in their grain or corn-fed counterparts.

According to Bulletproof Executive's Dave Asprey, 52-91.7% of green coffee beans are contaminated with mold. 50% of brewed coffee beans may be moldy. Decaffeinated varieties are more likely to have mycotoxins as caffeine protects coffee beans from mold. Coffee may be one of the most commonly used food products that can lead to an ongoing source of mycotoxin exposure. In fact, Asprey has created "Upgraded Coffee" with particular attention to the entire coffee production process to minimize the potential for the presence of mycotoxins.

Temperature and humidity are important factors with regard to how foods are stored throughout the production process. These impact the likelihood of mycotoxins being present in the resulting food products. Though there are standards in the food industry and limits on mycotoxins set for safety, food contamination with mycotoxins is a worldwide problem.

Food-borne mycotoxins may be a factor in ongoing gastrointestinal inflammation. Consumption of moldy foods or mycotoxins may be an increased risk factor for conditions such as irritable bowel disease. While there can be many factors involved in leaky gut syndrome, it has been suggested that fungi and mycotoxins may have the ability to damage the intestinal lining which may lead to increased intestinal permeability and further exaggerated immune responses and to increased inflammation.

Making wise food choice both in reducing potential sources of mycotoxins consumed and in reducing sugars and other yeast-promoting foods should be given adequate consideration in those dealing with the effects of molds and mycotoxins.

BROADENING THE HORIZON MAY LEAD TO BIG REWARDS

When it comes to the treatment of chronic Lyme disease, it becomes more and more apparent that many of the symptoms that patients present with are often not caused by Lyme alone. There is tremendous overlap in the symptoms associated with Lyme disease, with heavy metal toxicity, and with mold and mycotoxin illness. In order to optimize patient outcomes and regain optimal health, broadening the horizon in chronic Lyme disease evaluation and treatment often pays off with big rewards. Here's to your health!

Mycotoxin	Associated Molds	Example Binders	Potential Food Sources
Aflatoxin	*Aspergillus flavus* *Aspergillus parasiticus*	Clays (bentonite; montmorillonite) Charcoals Zeolites Glucomannan Diatomaceous earth	Milk, cheese, eggs, meat (contaminated feed); cereals, wheat, spices, tree nuts, peanuts, pistachios, Brazil nuts, chillies, oilseeds, corn, spices, black pepper, dried fruit, figs, dried coconut
Ochratoxin	*Aspergillus albertensis* *Aspergillus alliaceus* *Aspergillus auricomus* *Aspergillus carbonarius* *Aspergillus niger* *Aspergillus ochraceus* *Aspergillus sclerotiorum* *Aspergillus sulphureus* *Aspergillus wentii* *Penicillium nordicum* *Penicillium viridictum* *Penicillium verrucosum*	Cholestyramine Zeolites Glucomannan Diatomaceous earth	Cereals, wheat, corn, oats, coffee, dried fruit, wine, beer, cocoa, nuts, beans, peas, bread, rice, cheese, meats (contaminated feed; especially pork and poultry), dried and smoked fish, soybeans, garbanzo beans
Trichothecene	*Cephalosporium* *Fusarium* *Myrothecium* *Stachybotrys* *Trichoderma* *Trichothecium* *Verticimonosporium*	Clays (bentonite; montmorillonite) Charcoals Zeolites Glucomannan Diatomaceous earth	Grains, cereals, wheat, barley, oats, corn, rye, durum, soybeans, potatoes, sunflower seeds, peanuts, bananas

Note: This table is a partial listing of organisms that may produce mycotoxins. The focus is on the specific mycotoxins that are tested via urinary mycotoxin testing from RealTime Laboratories. Additional sources of mycotoxins or mycotoxin binders may not be listed in this table. Some of the binders mentioned above are from veterinary literature as mycotoxins are a serious concern in the production of animal products such as milk, eggs, and meat.

Resources

Much of the information in this article is the result of conversations with Neil Nathan MD and Wayne Anderson ND in addition to information from various conference presentations and online resources.

Informational Site from Doctors and Practitioners

- Dr. Dietrich Klinghardt - http://www.klinghardtacademy.com/images/stories/neurotoxin/NeurotoxinProtocol_Jan06.pdf

- Dr. Lisa Nagy: Mold and Mycotoxins - http://lisanagy.com/acatalog.php?id=1
- Dr. Ritchie Shoemaker - http://www.survivingmold.com
- Dr. John A. Tafel - Detoxification: Mold and Mycotoxins Protocol - http://www.drjohntafel.com/?page_id=617, http://www.drjohntafel.com/?page_id=619
- Dr. Jack Thrasher: Toxicology of Mycotoxins - http://www.drthrasher.org/page36.html, http://www.drthrasher.org/page7.html (Recommended Physicians)

Laboratories and Pharmacies

- ALCAT - http://www.alcat.com
- ASL Pharmacy - http://www.aslrx.com
- Alletess Medical Laboratory - http://www.foodallergy.com
- EMLab P&K - http://www.emlab.com
- Immunolytics - http://www.immunolytics.com
- Mycometrics - http://www.mycometrics.com
- RealTime Laboratories - http://www.realtimelab.com
- Tennessee Mold Consultants - http://tennesseemold.com

Publications

- Dr. Joseph H. Brewer: "Detection of Mycotoxins in Patients with Chronic Fatigue Syndrome" - http://www.mdpi.com/2072-6651/5/4/605
- Dr. Joseph H. Brewer: "Chronic Illness Associated with Mold and Mycotoxins: Is Naso-Sinus Fungal Biofilm the Culprit?" - http://www.mdpi.com/2072-6651/6/1/66
- Dr. Timothy Guilford: "Deficient glutathione in the pathophysiology of mycotoxin-related illness" - http://www.ncbi.nlm.nih.gov/pubmed/24517907
- Dr. Timothy Guilford: "Mycotoxin Detection in Human Samples from Patients Exposed to Environmental Molds" - http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2680627

Videos and Podcasts

- Dr. Neil Nathan – Mold, Lyme, and Coinfections - http://www.gordonmedical.com/unravelling-complex-chronic-illness/radio-interview-with-neil-nathan-md-mold-lyme-and-coinfections
- Dr. Neil Nathan: Mold Toxicity - http://mendocoasttv.org/mcdhWellnesslecturemoldtoxicitydrnathan1.html

Additional Useful Resources

- blackmold.awardspace.com - http://blackmold.awardspace.com
- Bulletproof Executive's Dave Asprey - http://www.bulletproofexec.com/?s=mycotoxins, http://www.bulletproofexec.com/bulletproof-video-get-stable-energy-perform-better-by-avoiding-these, http://www.bulletproofexec.com/mycotoxins-in-america, http://www.bengreenfieldfitness.com/2014/03/mold-in-your-home, http://www.bulletproofexec.com/why-bad-coffee-makes-you-weak
- Clinical Microbiology Reviews: Mycotoxins - http://www.ncbi.nlm.nih.gov/pmc/articles/PMC164220
- Dr. Shrader's LDA: A Dramatically Effective Immunotherapy for Allergy - http://www.drshrader.com/lda_therapy.htm
- Evaluation of Mycotoxin Binders - http://www.uwex.edu/ces/dairynutrition/documents/myco-maryland-binders.pdf
- Food Safety Watch - http://www.foodsafetywatch.org/factsheets/aflatoxins, http://www.foodsafetywatch.org/factsheets/ochratoxins, http://www.foodsafetywatch.com/public/983print.cfm
- Liposomal Glutathione (and research articles on mycotoxins): http://www.lipoglut.com
- Mold-Survivor.com: Symptoms of Fungal Exposure - http://www.mold-survivor.com/symptoms.html
- Mold-Survivor.com: The Toxic Effects of Fungal Exposure - http://www.mold-survivor.com/assoc.illness.html
- Mycotoxins and Immunotoxicology - http://www.omnigenresearch.com/file_download/9/mycotoxins_and_immunotoxicity_11_04.pdf
- Wikipedia: https://en.wikipedia.org/wiki/Fungi, http://en.wikipedia.org/wiki/Mold, http://en.wikipedia.org/wiki/Yeast, http://en.wikipedia.org/wiki/Mycotoxins, http://en.wikipedia.org/wiki/Aflatoxin, http://en.wikipedia.org/wiki/Ochratoxin, http://en.wikipedia.org/wiki/Trichothecene

Gifted and Sick
A new book by A. M. Runyan

About the book:

What happens when capable, high-achieving people become sick with chronic Lyme disease, myalgic encephalomyelitis (ME), chronic fatigue syndrome (CFS), fibromyalgia, multiple chemical sensitivity (MCS), or other neuroimmune diseases?

Building on interviews with 20 gifted patients, A. M. Runyan details the unique challenges this group can face around diagnosis, appearing healthier than they truly are, peer groups, career struggles, underemployment, and changes in identities.

For patients, this book is an essential guide to remembering and understanding who they are. For families, friends, doctors, and researchers, it can provide a guide to helping these unique patients to meet their needs--both health-wise and intellectually.

From the Reviews:

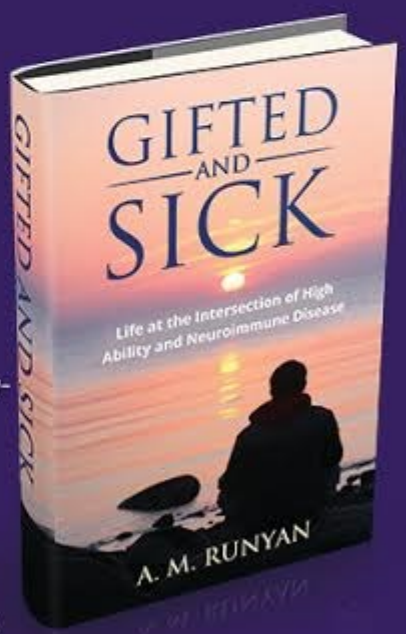
"It's an easy read and loaded with information."—Herbal connoisseur

"Runyan writes eloquently about one of the most fascinating but heartbreaking situations imaginable – living through the impairment of qualities that seem to define youmost."—John

"There are many gifted individuals who are being misjudged by family and peers because of lingering chronic illnesses, and this book goes a long way toward undoing these misperceptions."—Michael

"If you or someone you know is (or more likely used to be) considered to be talented or gifted until they 'burned out' and/or became ill, this work could be a turning point and touchstone for them…. The core message is, 'You are STILL that gifted/talented person, even if sickness is in the way.' That's potent and empowering."—Aaron

"This is just the book I was looking for. Patients who are or were highly functioning individuals and now find themselves feeling ostracized and invalidated because they are not the typical 'sick' person can find understanding and a new insight from this book. Thank you to the author!"—Carrie



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