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10 BARRIERS TO RECOVERY FROM *Lyme Disease*

A GUIDE BY DR. NICOLA DUCHARME

Introduction

There are many different treatment options available for Lyme disease, ranging from antibiotics to herbs to oxygen therapies and essential oils. Yet despite all these different options, Lyme disease is notoriously challenging to treat.

In my experience, treating the actual pathogens, the bugs themselves, is just a part of the puzzle.There are many other things that need to be considered, and woven together into a holistic approach to treatment. No one person is the same, no person has the same set of symptoms or underlying stressors on their body – it must all be tailored to you as an individual.

The following guide outlines ten things that need to be addressed along with your antimicrobial protocol, for true treatment success to occur. They are not the only ten things, they are just a sample of things. Don't feel overwhelmed by this – not everything needs to be tackled at once. Not all of these may apply to you; some you may be taking care of already. Use this information as a guide of things to discuss with your doctor to make sure your treatment is inclusive.

Remember, you **can** recover from Lyme disease. It takes time, commitment and perseverance, for sure. But it can and will be done.

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01

Untreated Co-infections

As you probably know by now, Lyme disease by definition is caused by the bacteria Borrelia burgdorferi. There are, however, several other bugs that we need to be concerned about, the main ones being Babesia, Bartonella and Ehrichia. We call these the co-infections of Lyme, because they can be transmitted by the same tick bite as the Borrelia bacteria.

In my opinion, undiagnosed and untreated co-infections are one of the biggest hindrances to recovery. So often, when people get tested for Lyme disease, it often is only for the Borrelia itself. Treatment then involves antibiotics that target this particular pathogen. The problem is, those antibiotics don't necessarily address the co-infections too. This is particularly true of Babesia, which isn't even a bacteria, but a protozoa. Thus treatment regimens really need to be tailored not only to the Lyme, but also to which co-infections are present.

Dr. Horowitz, in one of his lectures at the ILADS conference a couple of years ago, stated that 20 years ago his Lyme patients were predominantly infected with Borrelia and nothing else. Today, he estimates that 80% of his patients are infected with at least one co-infection.

Based on my own clinical experience, I would agree with that estimate. Part of the challenge with this issue is testing for co-infections. Granted, large labs such as Labcorp and Quest (in the US) can test for co-infections, but the testing is not highly sensitive, and misses a lot of positive cases. In fact, as much as I love IGeneX and value their more sophisticated testing methodology, there are many times where I see what I believe to be false negatives on their reports too. It's not that the testing is poor, it's that the immune suppression from the chronic infections make antibody levels lower than they need to be to register a positive result. IGeneX is now offering Immunoblot testing for Babesia and Bartonella which is more sophisticated testing than their previous antibody tests, and that is helping identify more cases accurately.

I mostly diagnose co-infections clinically, based on the patient's symptom picture. A negative lab report does not rule out the presence of a co-infection. As I mentioned, Babesia and Bartonella, in my opinion, are the most common co-infections, that will not be treated "by accident" by the Lyme treatment. Ehrlichia is more susceptible to the antibiotics that are used to treat Borrelia, so to me it is less of a concern. There are some hallmark symptoms I look for with Babesia and Bartonella.

Babesia loves the head and neck, so I look for blurry vision, ringing in the ears, head pressure, dizziness and sore/crackly neck. Also shortness of breath or "air hunger", night sweats, temperature regulation problems, nausea, easy bruising, vivid dreams/ nightmares, insomnia and fatigue. With Bartonella I will look for pain in the soles of the feet, pain around the rib cage, strange stretch-mark-like stripes on the body and scratches on the skin that can't be accounted for. Then I'll look for severe neurological issues that are out of proportion to the musculoskeletal – seizures, OCD-type behavior, severe anxiety and panic attacks, and so on. GI pain and dysfunction tend to be Bartonella related.

You can see that these are quite different to the classic Lyme symptoms of fatigue, joint and muscle pain, brain fog, numbness/ tingling in extremities, facial palsy and so on.

The other question that arises with the co-infection issue is what to treat first. It has been thought in the Lyme community that Babesia always needs to be treated first.

I believe that the dominant infection needs to be treated first. If I have a patient who is a poster child for Bartonella, and their Bartonella symptoms are causing them the most problems, then I'll go after Bartonella first. Often, though, Babesia is the dominant infection based on their symptoms, so we'll start out their treatment addressing Babesia. This is not to say that co-infections and Borrelia can't be treated at the same time, but it is a question of where to start, and how to best combine medications, herbs and therapies that give priority to the co-infection.

I believe that you can treat Lyme until the cows come home, but if co-infections are present and not addressed, you will make a slower and more limited recovery.

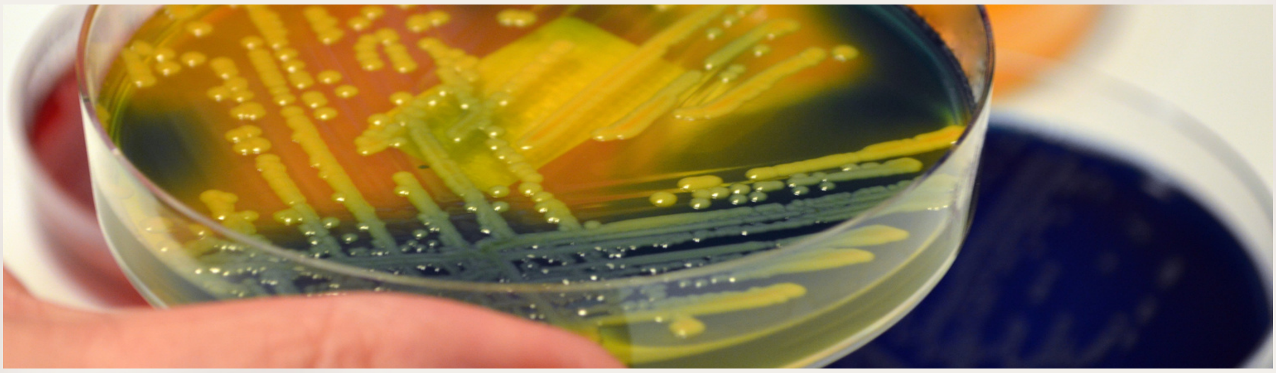
02 Biofilm

Biofilm is the term for a colony of bacteria that clump together and surround themselves with a mucopolysaccharide matrix. In other words, the bacteria immerse themselves in a slimy, goo-like substance, and in there they can live, replicate, feed, and live happily ever after, safely shielded from the immune system and from anti-microbial agents such as antibiotics and herbs.

Furthermore, bacteria use a system called quorum sensing, which allows for cell-to-cell communication and strengthens their network. They also utilize a protein from the blood called fibrinogen, which they convert to fibrin to strengthen their network.

Biofilm exists in many different contexts, it is not specific to Lyme. Plaque formation in the mouth that causes cavities and periodontal disease involves colonies of oral bacteria in biofilm. Biofilms occur in hospital settings, for example, bacterial colonies can adhere to tubing on catheters or other internal medical devices.

Eva Sapi, PhD is a researcher from the University of New Haven who has done extensive research on biofilm and Lyme disease. She found a handful of solutions to address biofilm. Her research showed that a combination of the herbs samento and banderol can help to break down biofilm. The other treatment options are enzyme-based substances such as lumbrokinase and nattokinase. These literally eat through the "goo" so that the bugs can be revealed, rendering them more susceptible to antimicrobials. Sapi's research found that lumbrokinase is significantly more effective than nattokinase in this category (I use the Boulouke lumbrokinase which is considered the highest quality and potency). Essential oils such as peppermint, clove and cinnamon can help break down biofilm also.



Her research also found that the medication tinidazole may have activity against biofilm.Tinidazole is also shown to have effect against all three forms of the Borrelia bacteria – the spirochete forms, the cell-wall deficient forms and the cyst forms. So tinidazole is a really worthwhile drug in Lyme treatment, even though it can produce a fair amount of Herxing for the patient!

Biofilms contain heavy metals too, so logic follows that chelating agents such as EDTA can bind up the metals, pulling them out of the biofilm and making it less stable. There are minerals such as calcium and magnesium in biofilm, giving rise to a theory that restricting those minerals is important.

My issue with this is that many Lyme patients rely on magnesium, in particular, to help with muscle aches, cramps and twitches, constipation, sleep issues and so on. Therefore, I do not typically restrict magnesium for these reasons.

I do not typically start biofilm agents early in treatment. Opening up biofilm can expose more bugs, which can then be killed off by antimicrobials. While one might think this is a good thing, in early days of treatment, when the initial Herxheimer reactions are heightened, it can be too much. I like to get 2-3 months of treatment under our belt, at least, before introducing biofilm agents. Biofilm is an important consideration in Lyme treatment. I do not believe that every patient is impacted significantly by biofilms, but it is essential to consider especially when a patient is not improving the way we would expect them to.

03 Heavy Metals

Toxic metals such as mercury, lead, cadmium and aluminum can easily build up in the body. They may first float around in the blood stream, but then they will be taken up into the body tissues where they lodge and can cause strife. Where they lodge determines the amount and type of strife they cause.

For some it may be in the connective tissue such as joints and muscles, causing arthritic symptoms and pain. For others it may be the cardiovascular system, contributing to heart disease (did you know that in some European countries, a patient presenting with blockage of coronary arteries will be detox'ed of lead before there is any consideration of bypass surgery?).

For other people, toxic metals can lodge in the neurological tissue – yes, the brain. This can cause cognitive decline, memory loss, problems with focus and concentration, word-finding difficulties and a generally foggy-brained feeling. Sound familiar?!

Where do these metals come from? Mercury can come from eating the wrong kinds of fish, from vaccines including flu shots and from air pollution – coal-burning power plants pump out mercury vapor every day. Lead might still be coming from old lead pipes, lead paint and in very small quantities from tap water – another good reason to drink filtered water.

Assessing heavy metal load is best done through a urine test. Yes, almost all labs offer blood testing for heavy metals, but here’s the problem; metals only stay in the bloodstream for an average of six to eight weeks once they enter the body – after that they are taken up into the tissues where they cause their strife. So unless the exposure is recent, the blood levels will come up normal. Similarly, if one does a urine collection, without a provoking agent, it may also come up normal, since urine is simply a filtration of the blood.

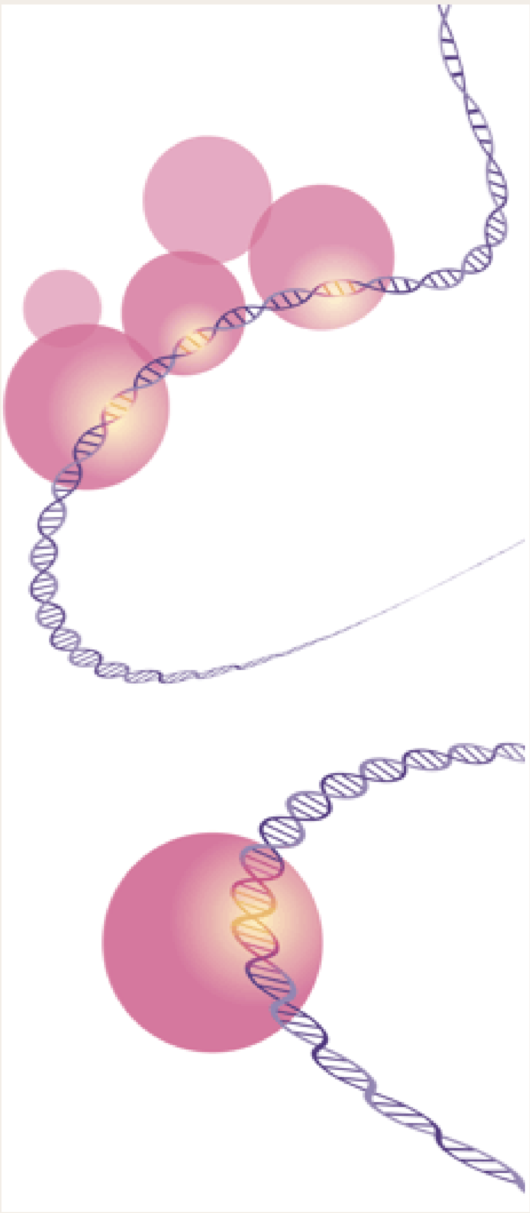
Therefore the method I use is a provoked urine test. We give a dose of DMSA, an agent that chelates heavy metals. (A chelator is an agent that prods metals out of the tissues, and shoves them back in the blood stream where the kidneys and bowels can excrete them through the stool and urine. Chelation is akin to detoxing, specific to toxic metals).

The DMSA causes a dump of metals, we collect urine for six hours following ingestion, and voila! we see metals coming out and can quantify them. I have run hundreds of these tests, and although it’s not a perfect science and doesn’t tell us exactly how much of these metals are left in the body, there is a definite correlation – the more metals that are dumped, the more there is in the body. Another way I know this is that when I retest my patients every two months throughout their treatment, I see the levels coming down on each test even though I’m giving them the same provoking dose. As their body stores go down, their levels on the provoked urine test do too.

The only time I hesitate to do the provoked urine test is in patients who are so super-sensitive that the dump of metals might produce too much detox and make them feel really lousy.Then, we either lower the dose of DMSA, or embark on a slow and steady metal detox protocol until they’re strong enough to tolerate the test.

Much can be done to rid the body of heavy metals. I have some “slow and steady” protocols for very sick, highly sensitive patients, to “gung-ho” protocols for patients who are quite functional and we think that toxic metals are the key thing holding them back. Protocols typically involve a combination of either DMSA or EDTA (sometimes both), along with detox helpers such as alpha-lipoic acid, glutathione, and Dr, Nicola’s Detox Support Formula; and binders to ‘escort’ metals out of the bowels and prevent reabsorption such as chlorella, modified citrus pectin, charcoal and clay.

04 Methylation Defects



Methylation refers to the process of adding a methyl group to many chemical compounds in the body.The process of methylation influences biochemical pathways in the body that regulate many different functions and processes, among them detoxification, neurotransmitter production and immune function. The DNA needs methyl groups to create healthy RNA, which creates healthy proteins, tissues, and cells.

Some people have genetic defects in their methylation pathways, which can impact the entire body. About 50% of the population appear to have genetic variants of the MTHFR enzyme causing them to have some difficulty resynthesizing methionine from homocysteine. That's fancy science-speak for "their methylation pathways are screwed up". Now don't panic, while genetics might lay down a predisposition, methylation defects can be corrected using the correct supplementation and lifestyle choices. This is called 'epigenetics' – 'epi' meaning on, or above. This goes above and beyond the basic genetic structure to how we can influence transcription to our body tissues.

There is testing that can be done to see if you have defects in your methylation pathways. Large labs such as Labcorp and Quest will test the MTHFR genes to see if there are defects there.

They report as negative, heterozygous (just one copy of the gene is mutated) or homozygous (both copies of the gene shows mutations). Remember, we have two copies of all our genes, one from our mum and one from our dad. A patient with homozygous mutations may have a greater susceptibility to chronic illness, where a heterozygous mutation is a milder version.

Some private labs do more extensive testing for different SNP's, looking much more in depth at the genetic make up of an individual. There are also some online services that provide interpretation of such reports. However, be warned – it's a lof of information and can be quite confusing to wade through.

Methylation is an emerging area in medicine – it's very important, and at the same time very complex. But there are ways to simplify it and take a sensible approach. If there are any genetic defects showing on the lab testing, one can supplement with "methylated" B vitamins such as methyl-folate and methyl-B12. This can provide the body with more of the methyl-groups needed to methylate the DNA and support healthier transcription. This can switch on detox, enable immune cells to function better, and increase the flow of healthy neurotransmitters, reducing depression and anxiety.

05 Adrenal Health

The adrenals are the stress-management centers of the body. They're so tiny – pea-size – and sit upon the kidneys. But boy oh boy do they take the hit for everything going on in our bodies.

Any stressor on the body can impact adrenal function – physical stressors such as pain, inflammation, infection and lack of sleep; emotional stressors such as family dynamics, worry, financial burdens; nutritional stressors such as poor dietary choices (more on that later); and even "good" stressors such as too much exercise. All of these things take their toll.

Given that many Lyme patients have been ill for many years, it makes sense that the adrenal glands can really be struggling. Adrenal fatigue can manifest in many ways – but the most common is profound, unrelenting exhaustion. Others include low immune function, poor sleep quality, lack of ability to heal, and poor detoxification. Adrenal fatigue also impacts metabolism leading to weight gain. Oh yes, and foggy brain can come from adrenal fatigue also.

There are 3 stages in what we call the chronic stress response. In the first stage, cortisol – our main adrenal hormone – is actually elevated. This is a compensatory mechanism, and a quite normal one.

Theoretically, when there’s a stress on the body, the adrenals pump out more cortisol to help us to deal with it. Think of the bear jumping out from behind the tree, or maybe more realistically for us, a near-miss car accident – cortisol helps us to react and respond. This could potentially be life-saving. But the system was designed for short-term stressors, not long prolonged ones such as chronic illness. When the stress becomes ongoing, the adrenals will try to continue to produce more cortisol but over time it will not be able to keep that up, and levels will fall … and fall … and fall … until eventually they’re way below normal and this is what we call stage 3 adrenal exhaustion.

Did you also know that the adrenals produce reproductive hormones such as estrogen, progesterone and testosterone? Many Lyme patients have their hormone levels all whacked out, and this may be partially due to adrenal dysfunction. Therefore while testing reproductive hormones and supplementing when low can be sensible, the problem with the adrenals needs to be addressed to get profound and ongoing benefit.

Once again, all labs offer cortisol testing, but many just a single sample via bloodwork. This can provide some good information, but has limitations.

My favorite test is a saliva test that measures four different samples – morning, noon, afternoon and night. This is better because some people have normal levels in the morning, but mid-afternoon levels have crashed (along with their energy). Some people are low in the morning but recover throughout the day.Some are low in the morning but elevated at night, which might give a clue to sleep problems.

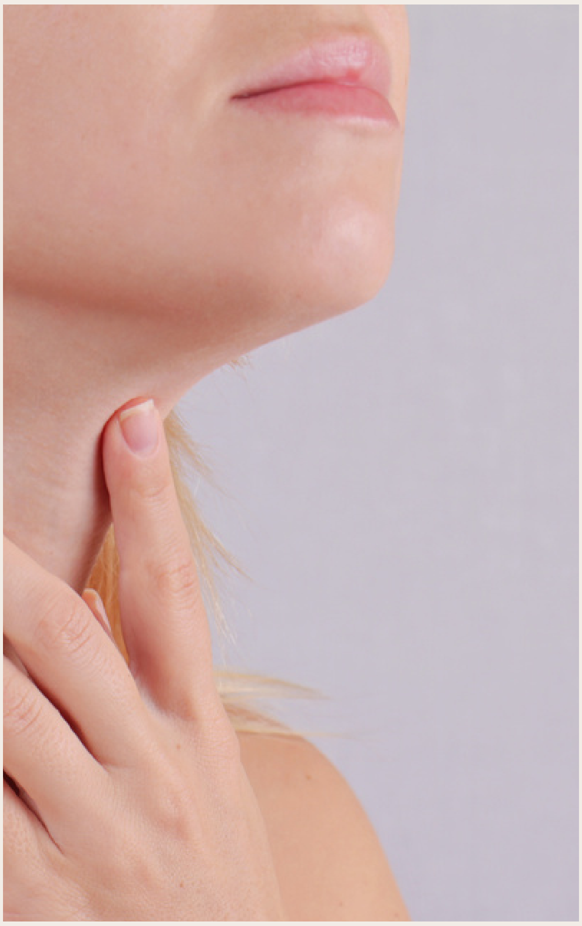
There are lots of adrenal support nutrients and herbs. Vitamins C, B5 and B6 are very helpful, along with balancing herbs such as rhodiola and ashwaghanda. Adrenal hormone precursors such as DHEA and pregnenolone can provide building blocks that the body can use to produce more cortisol. Siberian and Korean ginseng can be a little more stimulating, while licorice root can help rebuild the adrenals when cortisol is really low. I prefer to use natural treatments taken over time to address adrenal fatigue, but in some patients where cortisol seems to have packed up and gone on vacation, I might use a little hydrocortisone to prop the body up until it returns. High cortisol, although less common, can benefit from those balancing herbs also, along with phosphytidylserine, a compound shown to lower excessive cortisol.

06 Thyroid Health

While we’re on the topic of hormones, let’s talk about the thyroid. The thyroid is a butterfly-shaped gland that sits across the neck. It produces the T4 hormone, which circulates around the body and is converted to T3, the active form of the thyroid hormone. The pituitary gland, which snuggles up under the brain, sends TSH to the thyroid to tell it to produce hormones, which then works on a reverse feedback loop. The lower the thyroid hormone levels are in the blood, the more TSH will be produced by the pituitary, because it’s desperately trying to give instruction to the thyroid gland to up it’s production. Hence when you see a high TSH level on labs, it actually reflects low thyroid function, and vice versa.

The thyroid regulates metabolism amongst other things. Low thyroid function will make one very sluggish and fatigued, foggy brained, constipated, depressed and a poor sleeper. It can produce dry skin, dry course hair, brittle nails, thinning eyebrows on the outer parts, and a dull complexion. Many Lyme patients experience weight gain with their illness and the thyroid is partly to blame for this.

I often associate thyroid dysfunction with the co-infection Babesia. In fact, I associate most hormonal shenanigans with the co-infection Babesia. So this refers back to point #1 - treat all co-infections adequately and that can help hormones get back in line.



Given most Lyme patients experience fatigue, poor sleep quality, night waking, depression and weight gain – having a close look at thyroid function makes sense. However, unfortunately, many primary care docs do a quick TSH check, and so long as it's in the broad range of 0.45-5, they consider everything normal and move on. Two problems here – the first is that the ideal range of TSH is actually 0.45- 2. Anything above 2 and I'm getting suspicious. Secondly, a TSH alone is not enough of an indicator – we at least need free T3 and free T4, and preferably a reverse T3, to get a good picture. I also order the auto-immune thyroid markers – anti-TPO and anti-thyroglobulin – as many Lyme patients have auto-immune processes going on in their bodies, which can be assisted by compounds such as Low Dose Naltrexone and a gluten-free diet. If T3 and T4 are low-normal, and the clinical picture fits, I will consider supplementing with thyroid hormone, and I've found that it makes the world of difference in many of my patients.

The thyroid can be supported with natural supplements such as iodine, kelp, selenium and even thyroid glandulars. There are also prescription "natural" thyroid medications like Armour and Nature-throid. Both of these are from a porcine source (yes, piggy thyroid).

By far my favorite is bio-identical, compounded T3 and T4 taken in a 1:4 ratio to mimic the body's natural production. Bio-identical means it is produced to match the biochemical structure of human hormone exactly. It's not "natural" per se, because it is synthesized in the lab, however because it matches our own thyroid hormone the body can assimilate it much better (and the "natural" thyroid medications are only really "natural" if you're a pig, in my opinion, but that's neither here nor there!).

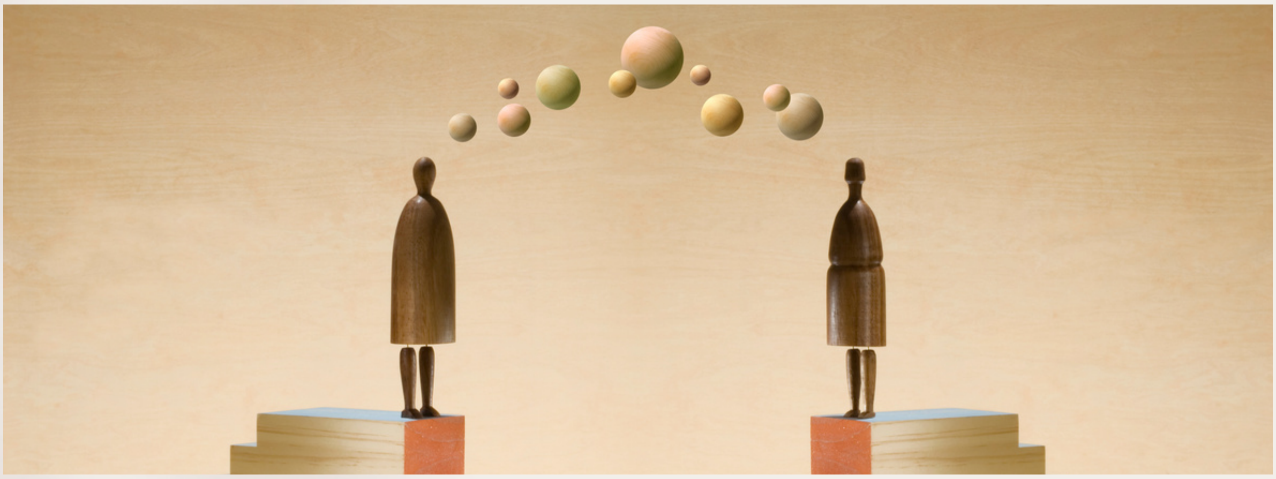
Starting low and building up gradually until the right dose is attained, thyroid supplementation can lead to more energy, a clearer brain, better quality sleep and a happier outlook. Aren't they things all Lyme patients desire?!

07 Thought Patterns

I have found in my patients that those who kept a positive outlook and chose to be optimistic about their health and their future were more likely to recover and stay well.

Trust me, having witnessed hundreds of patients on their Lyme journey, I am fully aware of the severity and brutality of this illness. I am aware of the stigma, the lack of awareness and understanding, the challenges of looking fine but feeling like death warmed up, and the amount of real pain and anguish this illness can cause. I am also aware that the infections themselves influence brain function and emotions, giving rise to depression and anxiety, thus making this whole process that much harder.

I am not for a minute making light of that, or implying that a few warm, fuzzy thoughts are the answer to everything.



However, having studied about neuropsychology and neuroplasticity, I can confidently say that there is a valid scientific reason why your thoughts are so crucial. This applies to anything in life, not just Lyme treatment and recovery, but it's definitely relevant here.

The study of neuroplasticity shows us that our thoughts create neural pathways in our brains. And more importantly, those neural pathways can be weakened or strengthened depending on whether or not we use them. We can have healthy, positive thoughts, or we can have toxic, negative thoughts.

I liken this to a roadway system. We can have a small dirt road, barely wide enough for one car. But if it's built up, and widened, and strengthened with concrete – it can become a superhighway. It takes time and work, but it can grow and become strong. We want our positive thought patterns to be eight-lane superhighways, not tiny little dirt roads. Conversely, we don't want superhighways of negative thought patterns, just tiny little dirt roads, if anything at all (it's unrealistic to think that we'll never have any negative thoughts, we just don't want them to be our dominant thoughts).

If you take an inventory and feel that you are spending more time on negative thoughts than positive, then remember the analogy of a dirt road. Spend some time every day deliberately strengthening your neural pathways til you have a two-lane road. Then lay some asphalt on your two-lane road, maybe widen it to a four-lane road. Keep building little by little until you have a superhighway. Believe me, with positive neural superhighways you'll find the negative thought patterns just fall away naturally.

The field of psychoneuro-immunology also shows us that the thought patterns we have, the neural pathways created and the neurotransmitters produced in response to that, can have far-reaching influence in the body, particularly over our immune system.This is why we hear stories of someone having a major heartbreak and being diagnosed with cancer not long after, or indeed why some Lyme patients' illness got significantly worse after a major stress in their lives such as a divorce, accident or death of a loved one.

There are a number of different ways to encourage our positive thoughts. It is a learned behavior, a trained response - don't expect it to come naturally at first - it must be worked at at first to change and mould your thought patterns from negative to positive. But once those positive highways are build, they're easy to maintain.

I have created a program designed to help people with this area called The Transformational Healing Academy. This program is helping people with chronic Lyme rewire their brain for healing.

Some people find flashcards around the house helpful - 2-3 positive sayings on the bathroom mirror can remind you as you brush your teeth to say them in your head. Saying them out loud actually works even better as then your brain hears them, and they are processed in a different way (this works better when you're not brushing your teeth!).

Some people find recording them as voice memos and playing them throughout the day is useful. Gratitude lists serve a similar purpose - they rewire your brain so instead of having things to feel sad or even resentful about, you have plenty of positive things to be grateful for.

That has been a game-changer for many people with chronic illness. Please do not underestimate the importance of this to your recovery.

Remember, your subconscious believes what you tell it. Our thoughts create our emotions, and our emotions create our experiences. Your body will believe what you tell it – so if you repeatedly tell it you're never going to get better, or that you’re going to die, then that’s what it will believe. It will be hard to get well with that kind of programming going on.

08 Nutrition

Of all the different aspects of Lyme disease and Lyme treatment, I believe that nutrition is the factor that patients have the most control over, and the one that can be among the most helpful. I have countless patients who can vouch for how much better they feel when they are eating a clean diet and avoiding inflammatory foods.

Eating a diet high in sugar, gluten and dairy, along with processed foods, can be a major hinderance to getting better. It may not seem that way, particularly if you have eaten that diet for years. You may not think they can impact your body as significantly as they can. But I have seen so much evidence to the contrary. Your nutrition is a key piece in your recovery.

There are a few key things that are the most problematic. Sugar is one of the worst foods for you. Actually, I might call it a drug more than a food. It's addictive, and it has you believe that you need it to get through the day. Sugar is immune-suppressive – one teaspoon of sugar can suppress immune function for up to 16 hours. In an illness like Lyme where you want the best immune system possible, it does not make sense to ingest substances that reduce its activity.

Sugar also feeds yeast. When taking antibiotics, there is a risk of Candida overgrowth from the flora in the gut getting out of balance. With long-term antibiotics, this can become a rate-limiting step in treatment, sometimes requiring patients to stop antibiotic therapy until it's brought back into balance. Given that yeast feeds on sugar, eating a high sugar diet will subsequently worsen the yeast issue. It's a catch-22 – sugar feeds yeast so yeast gets more problematic, which then sets up more cravings for sugar, which then makes one eat more sugar, and so it goes on.

The other food that I think is a huge problem is gluten. Many people are gluten intolerant and don't even know it. One does not always get digestive symptoms from ingesting gluten – so that's not an adequate guide. Lyme patients are more susceptible to autoimmune process in general, as Lyme messes with the immune system so much and can make it hyper-reactive. Avoiding gluten can help to minimize the autoimmune reactions.

This can also help when autoimmune thyroid issues such as Hashimoto's thyroiditis are present. Other than the autoimmune process, gluten is a very inflammatory grain in general. We want to avoid anything in the body that triggers more inflammation, as inflammation leads to pain, tissue damage and a major limitation on the body's ability to heal.

Dairy is another inflammatory food group. Food sensitivity testing can help identify dairy sensitivity, but I have seen patients improve when removing dairy from their diet, even without positive test results showing a frank intolerance. The mechanism is the same as above – inflammation leads to tissue damage, slows healing and can worsen pain.

Processed foods and fried foods are also problematic. Saturated fats are pro-inflammatory, and the toxins that come from junk foods are one more burden for an already burdened system.

The best diet for a Lyme patient, in my opinion, is sugar free, gluten free and low in dairy. It is high in anti-inflammatory fats such as flax oil and fish oil, and other healthy fats such as coconut, avocado and olive oils. It contains plenty of lean proteins that provide the building blocks of the immune system and of healthy cells.

Since diet is something that everyone has control over on a day-to-day basis, it seems logical to make health-advancing changes to boost immune function, reduce inflammation, and speed up cell healing.

09 Mold Toxicity

Mold toxicity in the body can be another reason why some people struggle to recover from Lyme disease. In some ways, Lyme and mold toxicity have a lot in common – both impact every system of the body, both create a toxicity in the body that is hard to recover from, both have profound impacts on the neurological system, both take advantage of genetic predispositions such as HLA phenotypes and methylation dysfunction.

The area of mold toxicity is a complex one.

Molds are types of fungi that can grow and reproduce forming spores. Mold grows indoors and outdoors, and is typically worse in damp environments. Some mold is visible, like the type we see growing on old food, but some is not visible. Black mold (Stachybotrys chartarum) is one of the most toxic types of mold. It is greenish-black in color, and can grow indoors or outdoors.

Mycotoxin illness can be hard to test for directly. There are some labs that measure antibodies to various molds – but one can be allergic to mold and not have mycotoxin illness. Meaning, one can have an immune reaction to mold without having the actual toxins stored in their body.

There are neurotoxic and inflammatory markers that tend to be indicators of mold toxicity. Dr. Ritchie Shoemaker, founder of www.survivingmold.com, author of Surviving Mold: Life in the Era of Dangerous Buildings, uses these markers as primary assessments of the impact of mold toxicity.

These include VIP, melanocyte-stimulating hormone, TGF beta-1, C4a, HLA testing, anti-gliadin antibodies, ACTH/ cortisol, VEGF, anticardiolipins, ADH, MMP-9, and leptin. If that all sounds quite complicated, it’s because it is! Dr. Shoemaker also has a test on his website called a Visual Contrast Sensitivity (VCS) test which one can take online to assess the impact of mold and the neurological system.

Urine mycotoxin testing can be helpful to see which types of mycotoxins are present and at what levels, which can provide a good baseline at the start of treatment to compare with down the road. Bear in mind, however, that mycotoxin testing is representative of what is being excreted on that particular day, it does not indicate total stores in the body. One’s ability to excrete mycotoxins will impact the results of this test. Having said that, this is my first choice in testing for mycotoxin illness.

The first step in addressing mold issues in the body is to check, double-check and triple-check that there are no current exposures. There is no point in pursuing any further treatment options if there are sources of mycotoxins still entering the body. For some people, avoiding the source of exposure is enough to have them feeling better. The next step is the use of binders. There are natural binders such as activated charcoal, silica, humic and fulvic acids, and chlorella; and then there are prescription binders such as Cholestyramine (CSM). Cholestyramine’s on-label use is for high cholesterol, as it binds fatty acids and helps get them out of the body rather than being absorbed. But it can also bind neurotoxins, helping mold patients significantly.

Binders do have some down sides – they can be constipating, and they need to be taken on an empty stomach one to two hours from food, medications and supplements (depending on the specific binder), which makes compliance quite difficult. But for those with mold toxicity, it's the most obvious treatment to start with.

Antifungals are important too, as well as pathway support to open up the channels of detoxification and elimination.

Mold toxicity and Lyme disease is a real double-whammy. Definitely the comorbidities make recovery from each more challenging, but it can be done! If you suspect mold toxicity might be a factor in your case, Dr. Shoemaker's website is an excellent place to start gathering information. I also love Neil Nathan, MDs book, Toxic, and Jill Crista's work on mycotoxin illness.

10 A Toxic Environment

Aside from molds, there are other sources of toxicity that can come from your home. Trying to clean up some of these areas can go a long way to helping relieve the burden on your body.

The first of these that comes to mind is toxic cleaning products. Cleaning products are laden with chemicals, some of which have very strong scents and can add to toxicity simply by breathing in their fumes. If you come into contact with the products on your skin, that is another route of entry into the body. This may not seem like a big deal to a person that is not impacted by chronic illness, but for Lyme patients, every chemical exposure is significant.

There are many non-toxic cleaning products on the market. As demand for this increases, more and more appear. I have numerous patients who replaced their more toxic cleaning products one-by-one as they ran out, which spaced out the expense and made it less overwhelming. 90% of patients who have done this report feeling better when exposed to the new, non-toxic products.

Electro-magnetic frequencies (EMF’s) are another source of pollution. Those of us who live in cities are exposed to large amounts of EMF’s – from wi-fi and cell phones, telecommunications towers, and power lines. As much as we love all our wireless and Bluetooth devices, they are major sources of EMF’s. So are we all supposed to move out to the country and try to escape them? Not necessarily, and it’s not like the rural areas are devoid of them either! What we can do is try to minimize their impact.

Not having wireless devices in the bedroom is a great step – many people gain great benefit for their sleep when they remove such things from their bedroom altogether. Using landline phones where possible rather than cell phones (and not the cordless ones either!), minimizing cell phone usage, having wired broadband internet rather than wi-fi, avoiding Bluetooth devices – these things can all help.

It’s worth it to avoid living in houses right near power lines. There are various contraptions and devices out there that are supposed to help reduce EMF radiation, such as earthing mats and sheets, EMF-protective clothing, and protective cages. I find it hard to discern which of these are credible and which are not, so my first step is always to try to remove as many of the sources as possible. Since EMF pollution can’t be felt right away, it can be insidious, and can be a major contributor to symptoms in Lyme patients.

Another source of toxicity is through food and water. In most areas, tap water contains traces of toxic metals such as lead and arsenic.It is also high in fluoride, a known neurotoxin, and chlorine. In fact, there are more than 80 “regulated” contaminants in our tap water, and even more unregulated toxins. Bottled water may be a better bet, but even then research must be done to check the standards of individual brands. In many ways I think a good water filtration system set up at the faucet is a better choice, and even better again is a whole house filtration system, since chemicals and toxins in water can access the body even by taking showers, brushing our teeth and so on.

Another source of toxins is through our food. Conventionally grown fruits and vegetables are laden with pesticides and fertilizers. Meat and poultry are reservoirs of antibiotics and hormones used to keep them disease-free and rapidly growing. Even farmed fish is more susceptible to heavy metals and other toxins, and is typically fed grain, which changes its healthy omega-3 fatty acids to less healthy ones. Eating organic produce and dairy, grass-fed beef and organic meats and poultry, and choosing wild-caught fish, will not only reduce your toxic intake of chemicals and pollutants, but will give you better quality food with higher nutrient levels.

Conclusion

These 10 things are not an exhaustive list of barriers to recovery, and as I said at the beginning, they will not all apply to everyone. So instead of feeling completely overwhelmed by these ideas, my suggestion would be to choose one or two things to look at that haven't been covered in your treatment so far; and pick one or two things you can do yourself at home to help your own situation. Next month reread the list and pick another one or two things. This way progress will be made in a systematic way, without being unrealistic or overwhelming.

I wish you all the very best on your journey towards health!

Dr. Nicola Ducharme

Meet Dr. Nicola

Dr. Nicola Ducharme is a Lyme-literate Naturopathic Doctor, best-selling author and educator. She is committed to helping people recover from chronic, complex illnesses such as Lyme disease, both physically, mentally, emotionally and spiritually.

She has authored several books on the topic of Lyme disease, including the best-selling *The Lyme Diet, The Beginners Guide to Lyme Disease, Lyme Disease in Australia* and *Lyme Brain.*

She has also developed two online clinical training programs for Lyme disease – *Lyme-Ed for Patients* and *Lyme-Ed for Practitioners*; as well as her program *The Transformational Healing Academy,* in which she teaches patients how to rewire their brain for healing and reclaim a positive mindset.

Dr. Nicola is a board-certified practitioner of Neuro-linguistic Programming, Clinical Hypnotherapy, TIME techniques and Life and Success Coaching.

In her practice, RestorMedicine, she consults with patients around the world, blending conventional and integrative approaches to treating Lyme and other tick-borne illnesses.

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