Lyme Brain

What to do when you’re ‘going crazy’

Section 1

Dr. Kevin Conners

Dr. Kevin Conners has earned his Fellowship in Integrative Cancer Therapy, Board Certified in Integrative Cancer Therapy; Fellowship in Anti-Aging, Regenerative and Functional Medicine, Board Certified in Anti-Aging, Functional and Regenerative Medicine; American Academy of Anti-Aging Medicine; currently studying for Certification in Cardiovascular and for Diplomate Status in Neurology, Carrick Institute as well as the Nutritional Diplomate program; graduated in 1986, Northwestern Health Sciences University; Fellowship in Health Research Outcomes, National Institutes of Health; over 100 hours postgraduate study in Autism Spectrum Disorders; practicing Applied Kinesiologist. He is the author of 8 published books including “Stop Fighting Cancer and Start Treating the Cause”, and “Help, My Body is Killing Me”, and numerous videos available on Amazon. Dr. Conners frequently lectures to doctors around the world at various seminars. Personally, Dr. Conners has been married to his high school sweetheart for over 34 years, has five children and soon to have 12 grandchildren.

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If any of you lacks wisdom, let him ask God, who gives generously to all without reproach, and it will be given him.

-James 1:5

This book is not going to explain everything you need to know about brain-based issues associated with Lyme disease but it is our hope, above everything else, to give you HOPE. There IS a reason you may feel like you’re going crazy; there IS an explanation for your memory loss, your focus issues, brain fog, depression and anxiety. If you never should walk in our door, please find some door where a doctor seeks your best, desires to find the cause and is less apt to blame a label. Always know that God made you and He loves you! Feel free to contact us for help professionally or send us your prayer requests:
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“You are never too old to set another goal or to dream a new dream.”
- C. S. Lewis
Chapter One

Understanding the LYME Stages
I don’t like ticks. We live on 10 acres and have purposely cut our grass to the edge of the adjacent cornfield and keep our dogs out at night to keep deer away. Since having Lyme twice and seeing patients struggle with the consequences of late-stage Lyme, I choose to view my love for deer on a television screen. Many of you also have a love-hate relationship with nature.

Since the advent of Lyme disease several decades ago, countless people have suffered far worse symptoms than I. I was lucky enough to catch it in Phase 1 and successfully annihilate it with antibiotics. Those who were misdiagnosed in this early stage or who never had the vicious early symptoms were left to discover the culprit of their chronic disability much later.

Why is this? What actually happens in the body when bacteria tries to inhabit and multiply against a defense dedicated to protect? Isn’t the body meant to kill such pathogens?

We humans have multiple defense mechanisms against invasive organisms. We’ve made allies with microbes as fetuses and allow certain bacteria to flourish in exchange for their symbiotic help in nutrient absorption as well as keeping ‘bad guys’ out.

Beginning immediately at birth, humans are colonized by a myriad of microorganisms that assemble into complex communities, creating a beneficial indigenous microbiota (our flora). The result is a “supra-organism” in which our microbial partners outnumber our human cells by 10-to-1. Most currently available information about the human microbiota concerns the bacterial component, although they are by no means the only important members. However, bacteria will be the focus of this discussion.

In contrast to the relatively rare harmful encounters with pathogens, indigenous human-microbe relationships are the dominant forms in which we interact with microbes and are fundamentally important to human physiology. Co-adaptation and co-dependency are features of our relationships with these friendly bugs.

This we now know to be true:
• The human microbiota facilitates nutrient acquisition and energy extraction from food,
• It promotes terminal (postnatal) differentiation of mucosal structure and function, and
• It stimulates both the innate and adaptive immune systems.

Why is your Microbiota important in Lyme?

By being the primary stimulation of immune system function, a healthy flora helps create our epithelial boundary and integrity, as well as to “educate” our innate immune defenses. It also provides “colonization resistance” against pathogen invasion (keeps Lyme from growing), regulates intermediary metabolism, and processes ingested chemicals.

What are the distinguishing characteristics of microbes like Lyme that desire to make us their host? A successful pathogen or commensal must do the following:

• Enter the human host (through a tick, passed through saliva…);
• Become established, which includes successful competition with indigenous microbes;
• Acquire nutrients;
• Avoid or circumvent the host’s innate defenses and a powerful immune system;
• Above all, replicate;
• Disseminate if necessary to a preferred site; and
• Eventually be transmitted to a new susceptible host, though we seem to be Lyme’s final host.

Smart Bugs

It has long been but a hypothesis that Lyme pathogens breach intact host anatomic, cellular, or biochemical barriers that ordinarily prevent entry by other microorganisms. Thus, pathogens “go where other microbes dare not.” In addition, many pathogens, such as *Borellia, Mycobacterium tuberculosis, Treponema pallidum, Chlamydia trachomatis*, and *Salmonella typhi*, have the capacity to establish persistent (often subclinical) infection in the human host and have evolved the extraordinary capacity to live in the inner sanctums of our innate and adaptive immune defenses or, in general, to compete well in the face of otherwise hostile host conditions. Some may
even evoke human macrophage activity to defend itself against immune attack!

For example, *Salmonella* profits from the inflammatory response that it provokes in the gut by using the oxidized form of a locally produced host factor for a selective growth advantage against commensals. A distinction, then, between a primary pathogen and opportunist is that the pathogen has an *inherent* ability to breach the host barriers that ordinarily restrict other microbes, whereas the opportunist requires some underlying defect or alteration in the host’s defenses, whether it be genetic, ecologic (altered microbiota), or caused by underlying disease, to establish itself in a usually privileged host niche. Clearly, the health of the human host plays as important a role as the pathogen in determining outcome.

An initial step required of Lyme bacteria is to gain access to the host in sufficient numbers. Such access requires that the microorganism not only enter the bloodstream but also then reach its *unique* niche or microenvironment on or within the host. To accomplish this goal, Lyme may make use of motility, chemotactic properties, and adhesive structures (or *adhesins*) that mediate binding to specific cell receptors or to other microorganisms (piggy-backing on other microbes).

Lyme pathogens that persist usually rely upon multiple adhesins and adherence mechanisms. Preexisting microorganisms (the host’s existing microbiota) will hopefully provide competition against establishment of the newcomer so long as it is healthy and abundant.

Normal inherent host defense mechanisms should pose the most difficult set of obstacles for Lyme pathogens against establishing themselves in a host. For any set of specific host defenses, an individual pathogen will have a unique and distinctive counterstrategy. Some of the best-known mechanisms that Lyme microbes use for countering host defenses include the use of an antiphagocytic capsule and the elaboration of toxins and microbial enzymes that act on host immune cells and/or destroy anatomic barriers. These are smart bugs, after all.

Microorganisms also use subtle biochemical mechanisms to avoid, subvert, or, as we now increasingly understand, manipulate host defenses. These strategies are complicated and are just now being better understood but it
is safe to say that Lyme and its co-infections are some of the best enemy spies ever trained! More on this later.

The above dissertation into microbiology was simply to say that Lyme is difficult to kill. Its ultimate purpose is to survive and reproduce; your ultimate purpose is to keep it from doing so.

It is during the initial invasion of a pathogen that we have the best opportunity to destroy it. As soon as it begins to reproduce it begins to learn how to produce ingenious ways to dodge defenses. Like a well-coached team, the speed of the replication cycles of the bacteria enables it to make genetic changes to survive its environment. This initial phase, when the pathogen remains extracellular is what I have termed Phase 1.

As an undetermined amount of time goes by, the bacteria’s ability to move intercellular is simply one disguise it is capable of. It can also meld itself to indigenous microbiota and exchange DNA to ‘buddy-up’ and bypass immune attack. Other times it may attract interleukin 10, a Th2 cytokine to its cell surface thereby repelling a Th1 (killer cell) attack.

Regardless of its mechanism, I define a Phase 2 pathogen as one that can no longer be killed by a normal immune response or by an antibiotic medication as it goes intracellular. Continued use of antibiotic at this stage will only be fruitful if continued long-term (3-6 years) and carries with it greater morbidity.

As the normal immune response attempts to kill the invading organism it shifts from a Th1, killer response to a B-cell (Th2) antibody response. This teeter-tottering back and forth is normal in an infectious disease as B-cells are looking for that which the killer cells have attempted to kill so they can make antibodies and ‘tag’ the bad guys. Over multiple, fruitless cycles where B-cells fail to locate hiding bacteria, the B-cells begin to create antibodies against self-cells in the vicinity of the invasion. THIS is the very definition of an autoimmune disease and what I term, Phase 3.
Summary of Lyme disease progression

The THREE PHASES of Lyme:

1. **PHASE 1 = Acute infection** – in this phase, the patient Still has the capability to KILL the disease with an antibiotic. This is why I HIGHLY recommend that those living in Lyme-infested areas have antibiotics on hand to use should they develop symptoms in Lyme season. This is ONLY open for a WINDOW of time, i.e. once one moves into Phase 2, the ability to completely kill Lyme with antibiotic therapy is greatly reduced!

2. **PHASE 2 = Chronic Lyme** – Chronic Lyme, Phase 2 begins the moment the first bacteria EXIT the bloodstream and ENTER the intracellular space (go inside the cell and hide). This phase still may be treated with antibiotics and immune-boosting Nutraceuticals BUT it will be a LONG, drawn-out treatment plan and, in the case of long-term antibiotic use, there will be considerable damage to the Gut and other cell membranes. Though it is better than Phase THREE, this phase is still horrible.

3. **PHASE 3 = Autoimmune Lyme** - When the patient’s condition continues to linger, the immune system is constantly trying to kill it – this is normal. However, in doing so, the “killer” side of the immune system, the Th1 response, fires to kill the pathogen and is unable to enter the cell to destroy those bacteria that have entered. This will eventually calm the Th1 response and set-off a B-cell (Th2) immune response in an attempt to find the bacteria (the antigen) and make antibodies against the bug, thereby “tagging” the bacteria (with the antibody) allowing quick detection and destruction.
Lyme Brain

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Section 2

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Chapter Two

How your brain WORKS

Brain Development

Oh, the sheer excitement of the above title. My neurology professor (30 years ago) was a terrible teacher and I never learned a thing about the brain. It would be decades later that I was introduced to Professor Carrick and life changed. I discovered that human behavior, though governed by choice, is shaped largely by the intricate function of a few pounds of fatty tissue encased in relatively thin bone. It’s amazing really; humans who build skyscrapers that touch the clouds, engineer moon landings, cage giant animals ten times their size, and rule the world have not enough bodily hair to keep from freezing to death on a cold night, no claws
sufficient for gathering enough food for the day, teeth too small to rip through an animal should carrion be found nor skin thick enough to able to defend even an attack from a large group of mice. No, we were created to use our brains.

Most neurological texts would dive into evolutionary theories on how fish brains lack a neocortex and as we evolved from slime we simply decided to grow neuronal hemispheres capable of reason. It takes at least as much faith to believe that as it does to believe there is a grand weaver who has a sovereign plan. If you want to get technical about it, thousands of years ago, humans had bigger brains. That conclusion was reached after researchers showed that ancient human skulls from Europe, the Middle East and Asia had an average brain capacity of 1500 cubic centimeters, compared to today’s 1359 cc.

The old skulls tested were almost certainly post-Flood, hence at most a few thousand years old by biblical reckoning, and ‘only’ tens of thousands of years old in evolutionary belief. If the result had shown that today’s brains are bigger, evolutionists would no doubt have interpreted this as humans evolving more ‘smarts’. But this outcome has caused a quiet surprise—not just for being contrary to evolutionary expectations, but because of the extent and speed of change. John Hawks of the University of Michigan called it “a major downsize in an evolutionary eye-blink”. That said, I will do my best to make this section readable and keep you from falling asleep because even though the facts may be ‘dry’, understanding them explains much about problem behavior.
Over the centuries scientists have argued two dominate views on human development. They proposed that children either came into the world genetically pre-programmed (“nature”) or that they were a “blank slate” on which their environment shaped their development (“nurture”). Lately, the debate over nature vs. nurture is fading as scientists now are investigating the complex ways in which genes and environment interact in part due to the completion of the human genome project that exposed the failure of the ‘genetically preconditioned’ camp. It turns out that we have fewer genes than expected – far fewer! If it is ‘genetics’ that we can blame all our problems on, it’s ‘epigenetics’ (what our environment does to affect the genes). Current brain science understands that both nature and nurture shape brain development, and that each set of influences is dominant to varying degrees at various points in time.

Before birth, nature is the primary actor in brain development. We certainly cannot dismiss the effect of environment as any parent of a Fetal Alcohol Syndrome/Fetal Drug child would attest, but the pre-programmed genetic map runs the show at this stage. According to Dr. Pasco Rakic, a professor of neuroscience at Yale University, “The number of neurons and the way that they are organized is determined by heredity.” We know that during the third week of pregnancy, a thin layer of cells in the developing embryo folds inward to create a fluid-filled cylinder called the neural tube. (Berk, 1994, p. 99). It is in the neural tube where the production of neurons, the brain cells that store and transmit information, begins at the rate of 250,000 per minute (Nash, 1997, p. 52). Here is where environmental toxicity may interrupt genetic processes.

By the end of the second trimester, the process of producing neurons is essentially completed. It was once believed that no more neurons would ever be produced again in an individual’s lifetime – a topic now hotly debated. Some neurons are programmed for specific functions such as breathing, controlling the heartbeat, regulating body temperatures, or producing reflexes – all depending on the pathways on which they are created. But, for the most part, neurons are not designated to perform specific tasks, and thus brain development is not complete at this point. Think of neurons as highways on which communication travels.

Brain development is "stimulus-dependent," meaning that the electrical activity in every circuit—sensory, motor, emotional, and cognitive--shapes the way that circuit gets wired. Similar to computer circuits, neural circuits
process information through the flow of energy (electricity). Unlike computer circuits, however, the circuits in our brains are not fixed structures and don’t solely use electricity but utilize chemistry as well.

Packages of chemistry called neurotransmitters created and degraded through enzymes made by specific genes govern the flow of electricity across miles of neuronal highways. Every experience--whether it is seeing one's first rainbow, riding a bicycle, reading a book, sharing a joke--excites certain neural circuits and leaves others inactive. Those that are consistently turned on over time will be strengthened, while those that are rarely excited may be dropped away, pruned to conserve valuable real estate. This is neuroplasticity and it is both good and bad. If my first experience with the world was an inattentive parent who neglected me, I may experience adult behavioral issues with getting needs met. We neurologically tie connections to feelings, experiences, events, object identification, color, sound, and every conceivable stimulus.

Functional neurologists say, "Cells that fire together, wire together," meaning connections are created, not pre-wired. The elimination of unused neural circuits, also referred to as "pruning," may sound harsh, but it is generally a good thing. It streamlines children's neural processing; making the remaining circuits work more quickly and efficiently. Without synaptic pruning, children wouldn't be able to walk, talk, or even see properly. But it goes both ways. If a two-year-old is never taught social behavior skills, pathways of ‘normal’ behavior far outreach cultural acceptance. Also, abused or neglected children create pathways of worthlessness that become superhighways easily traveled throughout life. This is the neural connection to “sins of the father carrying out to the third and fourth generation.” The cycle must be broken but it takes work – or should we say, neural exercise.

At any stage of development, other environmental toxins including maternal malnutrition, substance abuse (including alcohol, smoking, illegal drugs, and use of prescription and over-the-counter medications), exposure to chemicals or radiation, vaccinations, pathogens (like Lyme and other bacteria) and viral infections (such as measles) can lead to adverse effects on the developing brain. It goes without saying then that even the most loving parents; living in the fallen world which is inescapable with its chemical, EMFs, and destroyed food supplies (GMOs, additives,
pesticides, herbicides…) can have children with brain issues. It’s NOT about blame; it’s about recognition and correction!

While newborns are born with a full set of neurons, the most important part of brain development begins after birth - the wiring phase. Following birth, each of the brain’s 100 billion neurons creates links to thousands of others. This process is accomplished as neurons produce a web of wire-like fibers called axons (which transmit signals) and dendrites (which receive signals). Once axons make their first connections, the nerves begin to fire. It is at this point that the environment begins to take over in the process of brain development. Scientists often describe this stage as the equivalent of creating telephone trunk lines between the right neighborhoods in the right cities. At this point in development, the brain has to sort out which wires belong to which house. It is with these maps that learning will take place (Nash, 1997, p. 53, Carnegie, 1994).

The most important factor in this process of developing connections is stimulation, or repeated experience. Scientists now know that in the months after birth the number of synapses increases from 50 trillion to 1,000 trillion (Carnegie, 1994). Neurons that are stimulated by input from the surrounding environment continue to establish new synapses. Those that are seldom stimulated soon die off.

It’s like a highway system. Roads with the most traffic get widened. The ones that are rarely used fall into disrepair.

It’s not black and white, it’s GREY and WHITE

The nervous system is divided into components based on location: the central nervous system and the peripheral nervous system; as well as function: the volitional system and the autonomic system. Then there are other divisions; the autonomic is divided into the sympathetic and parasympathetic based on opposing functions. The central nervous system is composed of the brain and the spinal cord. The brain is then divided wholly into grey and white matter. Scientists are very left-brained and enjoy memorizing systems and names and big words that make you sound really smart.

Grey matter is the part of the brain that is made up of nerve cell bodies and the majority of the true dendrites (numerous, short, branching filaments that
carry impulses towards the cell body). Grey matter has no myelin blanket; it is simply the collection of cell bodies.

The real processing is conducted in the grey matter. It was given the name gray because, wait for it – it’s grey. Neurons create networks, in which nerve signals travel and though we speak of connections, they do not make contact with each other when conveying messages, but do so through sending chemicals across a gap called a synapse. The chemicals called neurotransmitters serve as the medium to connect one neuron to another neuron. The senses of the body (speech, hearing, feelings, seeing and memory) and control of the muscles are part of the grey matter’s function.

The white matter, also known as substantia alba (no, not Jessica Alba’s daughter though that would have been my first pick), is a neuron that is made up of extending, myelinated nerve fibers, or axons. It composes the structures at the center of the brain, like the thalamus and the hypothalamus. It is found between the brainstem and the cerebellum, between the neocortex (newer brain centers) and lower brain. It is the white matter that allows communication to and from grey matter (nerve cell) areas. It functions by transmitting the information from the different parts of the body towards the cerebral cortex; the white matter is the axons. It also controls the functions that the body is unaware of, like temperature, blood pressure and the heart rate. Dispensing of hormones and the control of food, as well as the intake of water and the exposition of emotions, are additional functions of the white matter. Communication along these fibers reaches a speed of 2-300 miles per hour (remember this for the quiz).

Because of the evidence emerging on synaptic development, scientists believe that appropriate stimulation of the child’s brain is critically important during periods in which the formation of synapses is at its peak (Berk, 1994). It is during these critical periods, or windows of opportunity that exist for different brain functions, when a child’s experiences can make the most difference. And, for some areas, if the connections between neurons are not developed during these critical periods, they will never develop at all.
Nutrition is so important in every stage but crucial in the early years. The average Western diet has changed dramatically such that humans today consume a much higher proportion of omega-6 fatty acids relative to omega-3 fatty acids than ever before. The importance of omega-3 fatty acids in human development has been well established in fetal and neonatal development, with brain and retinal tissues highly dependent on omega-3 fatty acids, specifically docosahexaenoic acid (DHA) for membrane fluidity and signal transduction. In childhood, omega-3s have been shown to contribute to ongoing cognitive development so supplementation with DHA is highly recommended. (Carlson, 2013)

This is why I’ve always said that a fat-free diet is the most dangerous diet known to man. Did you know that there is a phenomenon known as rabbit starvation? Yes, it is described by observing settlers that ate nothing more than rabbits, which were in abundance, and filled their bellies, yet died of starvation. The lack of fat in rabbit meat (tastes like chicken) was the killer. You NEED fat; pregnant mothers and children need fat even more (eat coconut oil). There, now you can’t say that you didn’t learn a thing from this book!

How does all of this apply to Lyme brain? Anything that causes a decrease in firing of cortical centers leads to dysfunction! This includes developmental delays due to everything from nutrition to lack of love or infections (like Lyme) that ramp-up inflammation in the brain. Every second of your life your brain requires stimulation; if you don’t use it, you lose it. Period; exclamation point. Poor use of grammar I know, but I want you to get his point.
Lyme Brain and the Prefrontal Cortex

In order to explain this important part of your brain that sits directly in back of your forehead I need to tell you about the Disney movie UP, Adolph Hitler, a Roman General, and my dog Lady. For those of you who have not seen Pixar’s UP, you now have some homework because the humorous observation of the dogs in this animated blockbuster give real insight into the prefrontal cortex.

In the story, balloon salesman Carl Fredricksen and his energetic wife Ellie live a wonderful life with dreams of adventure that always seems beyond financial reach. After Ellie’s death, Carl grows quiet and confined until meeting 8-year-old Wilderness Explorer Russell who is eager to get his “helping the elderly” pin. Without retelling the entire story, this unlikely duo travel to a faraway land and meet the antagonist as well as new friends like Dug, a dog with a special collar that allows him to speak, and Kevin, a rare 13-foot tall flightless bird (but a very nice bird, as all Kevin’s are).

Before you start thinking that I have ulterior motives for having children, there is a great lesson in the story’s antagonist (famed explorer/inventor Charles Muntz) and his dogs. Fitted with their talking collars, the dogs pursue the pair to capture their new friend, the exotic bird Kevin. In doing so we see the truth about dogs – they have a very small prefrontal cortex, as I’m sure you were thinking as well when you watched the movie.

Once, when capture seemed inevitable and the adventure seemed doomed to failure as the talking dogs were at the verge of victory, Russell ingeniously distracted the animals from their goal by shouting, “Squirrel!!” A large and healthy prefrontal cortex is what necessary to stay on task, remain focused on intention and block out distractive issues. Humans should have no problem with focus, dogs do. No matter how obedient to their evil master the dogs desired to be, dog are dogs and dogs chase squirrels.

Your prefrontal cortex allows attention on intention; it is the schoolmaster keeping the rest of the brain on task and without it there would be chaos directly proportional to the lesion. It is primarily responsible for regulating behavior, mediating conflicting thoughts, making choices between right and wrong, and predicting the probable outcomes of actions or events. It governs social control, such as suppressing emotional or sexual urges.
Since the prefrontal cortex is the brain center responsible for receiving data from the world and deciding on actions, it is most strongly implicated in human qualities like consciousness, general intelligence, and personality. It is what makes us unique as humans – the size of our prefrontal cortex.

If you bring to understand the function of the prefrontal cortex you can see why disruption from the inflammation in Lyme can lead to an array of symptoms.

“Every man can, if he so desires, become the sculptor of his own brain”  
— Santiago Ramón y Cajal

World War II

It was the summer of 1941, the plan was simple, but Hitler was alone in his thinking that it would be simple to perform. Given the size of Russia, the German army would be divided into 3 groups. Army Group North would advance through the Baltic States towards Leningrad, Army Group South would move into the Ukraine and then the Caucasus to take the wheat and oil fields of Russia, and Army Group Center would advance through White Russia towards Moscow.

Germany had already conquered most of Europe and the Fuhrer's success following his planned Blitzkrieg was unprecedented. He thought Germany was unbeatable and he trusted his track record over wise counsel. This obstinacy became the cause of many heated debates between Hitler and his Generals and proved disastrous for "Operation Barbarossa," the attack on Russia. When a country goes to war, it is only sensible that the Government and the Military have already determined the enemy's "Center of Gravity", and have already planned on how to neutralize it. The enemy's "Center of Gravity" can be their armed forces, their capital, a powerful ally, etc.

Hitler and his Generals disagreed from the start about what Russia's "Center of Gravity" was. The Generals thought it was Moscow, while Hitler thought it was Ukraine and the Oil fields of the Caucasus. Hitler's reasoning, if it can be called that, was based on history. Napoleon had taken Moscow, but the Russians had not given in, and in the end Napoleon had to retreat, with disastrous results for his Empire. Hitler was determined not to repeat that mistake; he was going to head south, take the Ukraine and the Oil fields, and deny the Russians the resources he felt they needed to continue the war.
His Generals could not have disagreed more. They argued that Russia was so vast, and capable of replacing whole armies, that only the capture of Moscow would destroy the Soviet Regime. They argued that Moscow was the political and logistical hub of European Russia, and if it was taken, the Russians would not be able to continue the war west of the Urals. A simple glance at any world atlas will indeed show that in Western Russia, "all roads lead to Moscow."

The General’s reasoning was that since most of Russia's population, resources and industry were located west of the Urals, even if the Russians elected to fight on, it would be a lost cause. Finally, they argued that Stalin was so feared and despised, (nearly a million citizens took up arms against Russia’s military) that if the Red Army was destroyed, and Moscow taken, the people would overthrow him and welcome Germany’s rule.

Hitler was a ruthless dictator, and therefore had the last word; in this case he was absolutely wrong. The attempt to seize of Ukraine in 1941 was blind optimism, born out of pride in the heart of a deranged tyrant. Even if the Germans had taken Ukraine and all of the oilfields, the Soviet Regime would still be intact and worse, given the still considerable Russian armies to the north and the long lines of communications the Germans would have in the south, the Russians could have possibly cut off the German army in southern Russia as they actually did in late 1942.

What does this have to do with the prefrontal cortex? Recent research on why we do what we do has concentrated on decision-making. There appears to be a dichotomy in cognitive neuroscience between reflective versus reflexive decision-making. Reflective, goal-oriented, or what has been termed model-based thinking is now been shown to be a right prefrontal function. This means if I have greater left-brain dominance, I will be more prone to habitual, less reasoned, or what is known as model-free decisions.

Right-brain dominant people base decisions more on perspective thought, weighing consequences, and seeing possible outcomes. Left-brain dominant individuals make choices more on what was done in the past, patterns that are common, and “the way I’ve always done it.” It goes without saying that evil dictators have brain problems but I think most have
two severe (very severe) lesions: right dorsolateral and right anterior cingulate damage.

A study published in Neuron in October, 2013 showed that disrupting the right dorsolateral prefrontal cortex impaired flexible model-based choices, driving behavior toward simpler, model-free (habitual) control. Blind pride may have more of a neurobiological cause than previously believed. Damage to prefrontal brain structures has been documented in psychopathic criminals as well.

These studies show that human choice behavior often reflects a competition between inflexible computationally efficient control (from the left brain) and a slower more flexible system based on weighing factors and consequences (the right brain) on the other. One can see that BOTH are necessary for optimal performance in a complex world. A commander of armed forces, a CEO of a major company and a parent of small children need healthy functioning frontal lobes to both make quick decisions based on past experience and slower, more carefully thought out choices based upon reason.

There are times we all need reflexive, non-emotional decision-making that will be efficient and give us a good chance that the outcome will be similar to past outcomes based on similar circumstances and there are other times where being able to imagine all sides of either ruling will guide us to the best selection. Imbalance is not healthy.

Would World War II have had a different outcome had Hitler had a more balanced brain? Well, yes, it wouldn’t ever have started had Hitler had a healthy prefrontal cortex. We could write an entire book on his traumatic childhood, his mother’s death of cancer, and his brain problems and conditioning but it suffices to say that one could explain all ill-behavior, no matter if demonic or innocent as having at least part of its origin in the prefrontal cortex.
“What is human memory?” Manning asked. He gazed at the air as he spoke, as if lecturing an invisible audience— as perhaps he was. "It certainly is not a passive recording mechanism, like a digital disc or a tape. It is more like a story-telling machine. Sensory information is broken down into shards of perception, which are broken down again to be stored as memory fragments. And at night, as the body rests, these fragments are brought out from storage, reassembled and replayed. Each run-through etches them deeper into the brain's neural structure. And each time a memory is rehearsed or recalled it is elaborated. We may add a little, lose a little, tinker with the logic, fill in sections that have faded, perhaps even conflate disparate events.

“In extreme cases, we refer to this as confabulation. The brain creates and recreates the past, producing, in the end, a version of events that may bear little resemblance to what actually occurred. To first order, I believe it's true to say that everything I remember is false.” — Arthur C. Clarke

My dog Lady is a great friend. She’s obedient (for the most part) and since she’s aged a few years, she’s just the level of mellow that I like in a pet. She drives me crazy though when I’m busy doing something like carrying groceries from the car or running to the barn to get the power drill. Wanting my immediate attention, I find myself frustrated with her uncanny ability to position herself exactly in the direction I’m moving. “Look out Lady,” I cry, as she moves again precisely where I was planning to step. She has absolutely no sense of self! She has no idea that she’s ‘in the way’ because she doesn’t even know that she is she. She cannot possibly see my point of view, cannot place herself in my situation, and cannot understand my intention because she has no sense of being.

What makes humans human? We are born completely dependent on mom and take years to develop; but Lady was wrestling with her brothers just minutes after her birth. Brett, my first grandson, took months to roll over, longer to sit up on his own and nearly a year before he walked and finally blurt out what was deep inside him since birth, “Grandpa is my favorite.” Lady on the other hand seemed to possess near her current intelligence weeks after birth and though her fondness for stealing shoes has diminished, she’s been Lady as I know her now since she was a pup.

Humans are different. We are more neurologically advanced yet it takes years, even decades, to mature through stages that lower species seem to
conquer in days or weeks. Why? It seems rather counterintuitive. Shouldn’t higher-level species have evolved a quicker defense against predators and be able to progress more rapidly to higher consciousness? Let’s talk about a special class of brain cells called mirror neurons.

We humans learn much of what we know by imitation. As neurons myelinate, our sense of self becomes keen and soon we are able to do something lower species cannot – we can adopt another’s point of view. The ability to see the world from another’s point of view is a complex function that my dog will never possess. Her frontal lobe is too small! I might embarrassingly add that often my frontal lobe acts as if it is equally small when I fail to see things from her point of view and blurt out expletives that I later regret.

The ability to create a mental model of another’s complex thoughts, called theory of mind, is unique to humans. Though Disney makes movies where animals reason and plan and argue and contemplate and set goals and give advice, Lady and her fellow non-hominids, no matter how many times I may say, “Can’t you SEE I’m carrying groceries,” will never understand. It’s tied to our ability to converse; our language to convey to another what we think about, how we feel, and even how we feel they feel about us. I can understand a complex dramatic plot and enjoy watching The Notebook because I possess mirror neurons (I’ve never actually watched The Notebook). I know what you’re thinking – I’ve finally solved the age-old quandary and can now explain it to men everywhere: women have more mirror neurons! This may actually be true, but we’ll discuss this another time.

Mirror neurons enable you to simply watch someone do something and fire the same brain circuit as if you did the same thing. They enable you to imagine doing something and fire the same circuit as if you actually did it. This is why I get an unpleasant sensation course my body when I watch Funniest Home Videos and see a skateboarder miss a rail and why I get a chill up my spine when I hear a patient explain how they missed the last step before tumbling to the tile. I have mirror neurons. Watch someone get pricked with a needle and you’ll fire pain pathways that can be measured on EEG scans.
The ability to wonder

It’s amazing really. We have the unique ability to empathize intimately with another’s misfortunes. We have the exclusive skill to learn, strategize, and contemplate what others may be contemplating. Humans can wonder. Mirror neurons give us the capability to blur the boundary between self and others.

I’ve asked patients, “If I stepped on your foot, where would you feel the pain?” They, of course answer, “my foot.” “Really,” I play. “The receptors for pain may be in your foot but you actually experience the pain in your parietal lobe, on the opposite side. It is the neuronal cell body in the primary sensory cortex in the parietal lobe that feels the pain and that then sends messages to the frontal lobe to make decisions about and react to such a stimulus.” This is exactly why Lyme patients, with inflammation in the parietal lobe, feel pain in the associated body part!

The ability to even contemplate the above paragraph required receptors in your auditory cortex to send messages to the frontal lobe and so on. Why am I boring you with this mental yoga? Because it’s extremely important when we are talking about problems that people have that would possess them to read a book like this. Mirror neurons are in the brain and problems in the brain cause problems with mirror neurons.

Depression, in part, can be explained as the inability to inhibit the mirror neuron pathway perseverating on impending doom; anxiety is the inability to inhibit fight or flight centers. Autism and Asperger’s is an obvious fracture of mirror neurons revealing countless symptoms of one’s inability to see anything beyond the narrow tunnel of immediate gratification. They are chained, like Lady, to whatever degree of inability to see beyond their current point of view.

A healthy ‘free will’ is only possessed by those with healthy, cortical, mirror neurons. We can consciously inhibit most motor functions and ‘override’ mimicking another’s behavior but autonomic function still prevails. If I tell my daughter there is a spider on her back, she’ll scream, sweat, panic, jump and throw her hands up in that girl-ish way girls do even before proving my assertion with hard evidence. That was her ‘learned’ response (I never taught her that, it must have been her mother). She fired real pathways.
As we will see in later chapters, the ability to control these pathways is health. Phobias are over-firing learned circuits; OCD, tics, PTSD, and panic attacks are the same – inability to control mirror neuron circuits. The same is true for someone stuck in self-pity, narcissistic personalities, and violent criminals with no hesitation to harm another. Healthy individuals can inhibit circuits that less healthy people can’t and the fact that inhibitory pathways can be strengthened is the very reason we wrote this book and gives hope to civilization!

Again, how does all this have to do with Lyme brain? Lyme causes inflammation that BLOCKS these pathways!

The Limbic System

Limbic is an odd, Latin term meaning the edge or border. It’s where we get the word “limbo”. It’s an intermediate state between two important places. Early anatomists saw this area of the brain, that which is between the important neocortex and the midbrain as the ‘in-between area’, or limbic lobe. The limbic system includes one of the following on each side: the hippocampus, amygdala, and other named structures in the temporal lobes that we won’t be discussing. (Some experts would also include parts of the hypothalamus, thalamus, midbrain reticular formation, and olfactory areas in the limbic system.)

Are you bored yet? Hang in there as you may spot some relevance as we discuss symptoms when these structures aren’t working well. The Limbic System houses several important structures to anyone with behavioral or emotional issues.

First let’s discuss the hippocampus because it has such a groovy name. Historically, the earliest hypothesis was that the hippocampus was involved in the sense of smell. Now we know that it is more tied to memories of different smells and how a particular smell of let’s say German potato salad instantly connects us to Grandma’s house on Thanksgiving when you were

“The neural processes underlying that which we call creativity have nothing to do with rationality. That is to say, if we look at how the brain generates creativity, we will see that it is not a rational process at all; creativity is not born out of reasoning.”
— Rodolfo R. Llinás, I of the Vortex: From Neurons to Self
5. Over the years, anatomists have whittled down several main ideas of hippocampal function: inhibition, memory, special order, and circadian rhythm.

The behavioral inhibition theory (caricatured by O'Keefe and Nadel as "slam on the brakes!") was very popular up to the 1960s. It derived much of its justification from two observations: first, that animals with hippocampal damage tend to be hyperactive; second, that animals with hippocampal damage often have difficulty learning to inhibit responses that they have previously been taught.

The second major theory relates the hippocampus to memory. This idea stems from a famous report by Scoville and Brenda Milner describing the results of surgical destruction of the hippocampus (in an attempt to relieve epileptic seizures), in a patient named Henry Gustav Molaison, known until his death in 2008 as H.M. The unexpected outcome of H.M.’s surgery was a specific type of amnesia: H.M. was unable to form new memories after his surgery and could not remember any events that occurred just before his surgery. He retained memories for things that happened years earlier, such as his childhood. This case produced such enormous interest that H.M. reportedly became the most intensively studied medical subject in neurological history.

There were then other patients with similar levels of hippocampal damage and amnesia (caused by accident or disease) who have been studied as well. There is now almost universal agreement that the hippocampus plays some sort of important role in memory and most agree its role is more similar to the part of the brain that the original anatomists placed it than they could ever imagine because it is a ‘check station’ for working memory (things happening now) to pass through to long-term storage (in the temporal lobe).

What does this mean to you? Well, if you’ve ever walked into a room and asked yourself that stupid question, “What did I come in here to get?” then you’ve experienced a “blip” in your hippocampus. Working memory, or current thoughts and plans, needs to shunt back from the planning centers in the prefrontal cortex, through the hippocampus to the temporal lobe where they are stored for future use. “Honey, will you get me the scissors in the kitchen,” spoken when I’m in the middle of writing a section on the limbic system ends up with me standing in the kitchen with absolutely NO
idea of why I was there. In this case, brain chatter caused incomplete processing of frontal lobe commands (or maybe it’s just because I’m a man).

Is it just age that brings about a greater incidence of “senior moments”? If so, then somebody tell me why my teenager can’t seem to follow simple instructions even if I tattooed them on her arm. Yes, chatter, disinterest, and not really paying attention will cause working memory issues but abnormal attention problems and continually forgetting where you placed your keys or having to depend more on lists than ever before are all signs of hippocampal damage, most commonly caused by inflammation. We’ll talk more about causes in a later chapter but right now, let’s just admit we may have a problem.

The third important theory of hippocampal function relates the hippocampus to space. A very influential book, The Hippocampus as a Cognitive Map, championed the spatial theory. As with the memory theory, there is now almost universal agreement that spatial coding plays an important role in hippocampal function. A cognitive map is a type of mental representation (you could say your ‘mind’s eye’) which serves an individual to acquire, sort, store, recall, and decode information about the relative locations (where) and attributes (what) of phenomena in their everyday spatial environment.

You could say that the hippocampus works to sort experiences into respective files and then recover them for future use like a file clerk carefully labeling those little plastic tabs that go on the green hanging files and systematically placing all the important papers in the perfect alphabetical order. Boy, am I dating myself! Maybe a better example would be how I acted just like a hippocampus this morning when I sorted all my Word documents into neat files on my desktop so I wouldn’t have to spend 45 minutes trying to find a handout on liver/gallbladder flush to give to a patient (like I did yesterday).

Some researchers view the hippocampus as part of a larger medial temporal lobe memory system responsible for general declarative memory (memories that can be explicitly verbalized—these would include, for

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Some people feel guilty about their anxieties and regard them as a defect of faith but they are afflictions, not sins.  
-CS Lewis
example, memory for facts in addition to episodic memory). Damage to the hippocampus does not affect some types of memory, such as the ability to learn new motor or cognitive skills (playing a musical instrument, or solving certain types of puzzles, for example). This fact suggests that such abilities depend on different types of memory (procedural memory) and different brain regions.

Finally we’ll discuss the hippocampus’ role in circadian rhythm, you know, that smooth Jazz band that your Uncle Larry listens to. No, the circadian rhythm is the cyclical output of hormone release. This timekeeping system, or biological “clock,” allows us to anticipate and prepare for the changes in the physical environment that are associated with day and night, energy needs of the body and brain, and sleep patterns thereby ensuring we will “do the right thing” at the right time of the day.

When I hear patients say things like, “I can’t fall asleep”, or “I fall asleep fine but then wake and can’t get back to sleep,” I think, “They have a screwed-up hippocampus” (or sometimes I think, “I’d really like a peanut butter sandwich” – but let’s not confuse things here).

Cutting through all my ridiculous attempts to bring my really stupid humor to a rather boring topic, let’s review some things about the hippocampus before moving on:

- It may be important in behavioral inhibition along with the prefrontal cortex
- It is very important in shunting working memory to long-term storage
- It is important in sorting and retrieving memories
- It may tie memories of special senses (smell) to events, people, or places
- It helps with hormone output as it connects to the hypothalamus and pituitary gland
- It may help tie emotional memories to the amygdala as we shall soon see
- And, it’s a fun word to say

So again, inflammation in the brain from Lyme can cause issues in the above functions!
Lyme brain and the Amygdala

Next we'll discuss the amygdala. It sits at the end of the hippocampus, on both sides of the brain and I think it sounds like the name of a French, cream-filled pastry (I must be hungry). Its central nucleus produces autonomic (non-conscious) components of emotion (e.g., changes in heart rate, blood pressure, and respiration) as well as conscious perception of emotion primarily through the prefrontal cortex (anterior cingulate cortex, orbitofrontal cortex, and dorsolateral prefrontal cortex). Important to note is that these pathways go both ways, which controls emotional behavior, fears, and anxiety.

The amygdalae perform primary roles in the formation and storage of memories associated with emotional events. Research indicates that, during fear conditioning, sensory stimuli reach the amygdalae, particularly the lateral nuclei, where they form associations with memories of the stimuli, especially if there is a strong emotional connection. Memories of emotional experiences imprinted in reactions of synapses in the amygdala elicit fear behavior. Fear behavior may be described as what you’d experience if a grizzly bear tore your tent door off. Think of that for a bit and then I don’t need to describe the loss of digestive control, raw emotions surfacing, sweating, lump-in-stomach, loss of sexual desire, etc.

This technically happens through connections with a grouping of neurons in what’s called the central nucleus of the amygdalae and the bed nuclei of the stria terminalis (BNST). The central nuclei are involved in the genesis of many fear responses, including freezing (immobility), tachycardia (rapid heartbeat), increased respiration, and stress-hormone release. This is because it fires directly into the sympathetic nervous system (the flight, fight, or freeze system). So, stimulation of the amygdala causes intense emotion, such as aggression or fear.

An example of a strong stimulation of the amygdala would be a panic attack. Panic attacks are brief spontaneously recurrent episodes of terror that generate a sense of impending disaster without a clearly identifiable cause. PET scans have shown an increase in blood flow to the hippocampus, beginning with the right hippocampus (think right brain – more emotional) and then to the amygdala. Similar but attenuated blood flow increases occur during anxiety attacks and prolonged stress.
Any lesions of the amygdala or from the prefrontal cortex connections to the amygdala were shown to be primarily responsible for ‘flatness of affect’. This work eventually led to the psychosurgical technique of prefrontal lobotomies (my aunt had this done in the 1930’s and lived as a personality-less ‘vegetable’ for another 60 years). Remember the movie with Jack Nicholson, “One Flew over the Cuckoo’s Nest?” The prefrontal cortex sends inputs into the amygdala and severing this input obliterates the conscious connections to emotions, social behavior, and interaction leaving a flatness of affect directly proportional to the size of the lesion.

Likewise, the opposite is true with excitation – lack of inhibition, excessive motive, OCD-like behavior, excessively emotional, etc. Lesions may increase or decrease function of any particular area or its connections to or from such lobe. Remember, by ‘lesion’ we mean any interference, stimulation or abnormal function.

The amygdala combines many different somatosensory and visceral inputs—this is where you get your “gut reaction”. The link between prefrontal cortex (conscious awareness and decision-making), hypothalamus (hormonal response), and amygdala (emotional memory), likely gives us our gut feelings, those subjective yet protective feelings about what is good and what is bad.

One intriguing observation in ASD is the apparent enlargement of the amygdala. The concept of “allostatic overload” (McEwen 2004, and McEwen & Lasley, 2003) was coined hypothesizing a possible biological defect causing an overgrowth. The enlargement of the amygdala would explain an increased activity of amygdalar function in many individuals – a heightened level of fear and anxiety, chronic stress of an ‘overly sympathetic’ (by sympathetic I am referring to the sympathetic nervous system controlling fight or flight responses) state, and generalized avoidance of social situations.

Are you beginning to see any Lyme Brain symptoms that you may be having? I am sharing all this technical, and probably boring information to prove to you that you are not crazy, that inflammation in the brain form Lyme can cause literally EVERY symptom you can imagine and that ultimately, through ridding the cause (Lyme) and rebuilding the pathways, you CAN get your life back.
Dr. Kevin Conners

Dr. Kevin Conners has earned his Fellowship in Integrative Cancer Therapy, Board Certified in Integrative Cancer Therapy; Fellowship in Anti-Aging, Regenerative and Functional Medicine, Board Certified in Anti-Aging, Functional and Regenerative Medicine; American Academy of Anti-Aging Medicine; currently studying for Certification in Cardiovascular and for Diplomate Status in Neurology, Carrick Institute as well as the Nutritional Diplomate program; graduated in 1986, Northwestern Health Sciences University; Fellowship in Health Research Outcomes, National Institutes of Health; over 100 hours postgraduate study in Autism Spectrum Disorders; practicing Applied Kinesiologist. He is the author of 8 published books including “Stop Fighting Cancer and Start Treating the Cause”, and “Help, My Body is Killing Me”, and numerous videos available on Amazon. Dr. Conners frequently lectures to doctors around the world at various seminars. Personally, Dr. Conners has been married to his high school sweetheart for over 34 years, has five children and soon to have 12 grandchildren.

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Inflammation is the enemy of the Brain

Lyme infections that cross the blood-brain barrier cause an immune response in an attempt to kill the pathogen. If that wasn’t bad enough, the details described numerous times of Lyme eluding destruction to have the immune B cells create antibodies against your own neural cells leaves the patient in dire straits. Every time the immune system fires, for ANY reason (a common cold, a food-born pathogen) the first thing that will be destroyed is that which you have antibodies against. Namely, every flair of the immune system kills brain cells!

This is why people with antibodies to ANY self-tissue should avoid immune stimulants. Whether you have MS or Hashimotos, RA or Lyme, adding
immune stimulants may seem wise to help kill the enemy but once you have self-antibodies, the immune system thinks the enemy is YOU.

Well, this kinda stinks! How in the heck are you going to kill the pathogen if you can’t even use your own immune system? So goes the age-old question that I spend an entire book (see “The 3 Phases of Lyme”) telling you that you MUST use other means. Below is a link to describe my protocols for Phase 3 Lyme and all other autoimmune disorders:

http://connersclinic.com/lyme-determining-your-phase/

Lyme plus Stress equals WORSE Brain

Normal stress relies on two key hormones: adrenaline (epinephrine) and cortisol. Very simply stated, adrenaline works in the short term, while cortisol has large momentum and works in the long term. I say ‘normal’ because the ‘stress response’ IS normal; it is a necessary physiologic response to a stimulus, either real or perceived. Yes, the stress response can also be activated if your brain perceives danger or any kind of threat, whether real or imagined.

Normally, a stressor triggers the release of adrenaline from your adrenal glands into the bloodstream to prepare the body for action. As a result, your heart beats faster, you begin to sweat, your breath becomes shallower, you shunt blood from your organs to your extremities, and your senses become more acute, all to prepare to run or flee. This is the so-called fight or flight response to the stressor, and they are wonderful, necessary and short-term.

This is the key point: stress responses are supposed to be short-term responses to immediate danger as a protective measure to avoid calamity. The problem lies in that we live in a world where lions and bears are attacking us constantly! The lion of getting the kids to school, completing a project, pleasing the boss, and meeting ever-pressing deadlines coupled
with the bears of financial pressures and keeping up with the Joneses have never been more apparent than today’s modern society. What was created to be an infrequent response to life-or-death situations has become daily survival in the concrete jungle of life.

In the chronic stress response, the Sympathetic nervous system is hyper-triggered causing blood pressures to rise, and all bodily functions deemed unnecessary for imminent survival to suppress. Brain function is impaired, inflammation increases; there is no need for a sex-drive, detoxification, or bowel function if a bear is chasing you, you just need enough blood to your legs to outrun your friend.

The effect of the stress hormones on the brain is survival oriented. The initial surge of adrenaline can make you feel good, hence, why some “Type 1” individuals are addicted to stress. Just as your levels of adrenaline start coming down, so rises the amount of cortisol flowing through your veins. Moreover, cortisol has a much larger momentum and enduring response than adrenaline, which means that even though it builds up slowly, it also takes a long time to go back to normal. Worse, should you continually engage adrenal stimulation, your levels of cortisol also increase.

Note: Cortisol stimulates dopamine release in the brain and the two functions together to produce the stated results. See later where I tell you about the COMT gene and defects in it that keep excessive amounts of dopamine in the brain mimicking the same symptoms of excess cortisol.

The combination of the rise of cortisol and the decrease of adrenaline, come the nasty side effects of the stress hormones. It is during this time in the cycle you can feel worse, energy tumbles, anxious, and you may begin to have negative thoughts. You only feel the negative effects of stress as your body is stressing down and progressing towards a more relaxed state. When you are building up on adrenaline, in effect stressing up, you might
even be feeling good – this can be addictive (the *adrenaline rush* and the consequent *adrenaline crash*).

Cortisol then, gets the bad reputation as being the stress hormone with all the negative effects. In reality, cortisol plays some very important parts in homeostasis, energy production and blood sugar regulation. Prolonged cortisol production is the problem as it throws the glucose balance off in the brain (its primary food source) and leads to inflammation through a pathway called a TH17 response.

In the very early stages, a chronic stress response will not produce many noticeable brain symptoms. Functional Medicine lab testing reveals an adrenal stress response that is “out of whack”, a HRV test will reveal a Sympathetic spike, a Neurological Exam will show obvious signs, a “Brain Map” with a functional EEG will reveal asymmetry, and a Kinesiology Exam may reveal hormone imbalances long before symptoms drive a patient to see a physician.

Subjectively, you will eventually begin to feel a bit down and tired, especially during those periods when you are *crashing down* from the adrenaline, but most people would still not say that they feel depressed. Also, you would start sleeping a bit less than usual, having difficulty sleeping and possible waking at night and having a harder time getting back to sleep or just not feeling quite as fresh when you wake up.

Over time, more damage to neurons continues. Stress starts to take its toll as the amount of stress hormones increase. This is largely person-dependent, but most people start having problems with their digestive system, headaches, toxicity issues due to suppressed pathways, sexual dysfunction, poor sleep and having more frequent dreams. Since stress depresses the immune system, people also tend to fall sick with infections more often.

The bottom line is that prolonged stress damages neuronal pathways that may lead to depression and anxiety disorders; but it is a problem in the brain. Depression, anxiety, panic attacks, hyperventilation, bouts of psychosis, etc. are frontal lobe issues. As the insidious buildup of
inflammation disables the communication between the prefrontal cortex
deeper brain centers, the deeper centers lose their CEO. The prefrontal
cortex is the parent, the boss, the executive that is supposed to calm the
instinctual centers lying in the archeocortex. Raw emotions stored in the
amygdala, hormone balance supplied by the hippocampus and impulsive
behavior from the midbrain left on their own without the parenting of the
prefrontal cortex can be disastrous.

But since Lyme patients never encounter stress, the previous section is
mute. ;)  

**Physiology of Depression, Anxiety, OCD, Panic Attacks…**

- Neuron death in the hippocampus has been implicated
- Neurogenesis (the birth of new neurons) may be necessary for
  recovery
- Neurogenesis happens continuously in the healthy adult brain with
  proper stimulation and fuel
- Most antidepressants require about 2-3 weeks to have an effect and
do nothing for neurogenesis (re-growth of damaged pathways)
- Stress may diminish neurogenesis
- People under stress may sleep less than usual, produce less IGF
  (growth factors for healing), increase brain inflammation, and
  increase rate of neuronal degeneration
- Stress and brain inflammation speeds aging

At least certain parts of the brain continuously renew themselves; this is
what is called neuroplasticity. Sleep seems to be fundamental for this
renewal process----perhaps the greatest amount of neurogenesis happens
during sleep.
Lyme plus bad diet - Artificial Sweeteners

A poor-choice diet filled with GMOs, chemical preservatives, flavorings, MSG, and additives bring along their own inflammation to the brain. However, artificial sweeteners are so damaging to the brain that they deserve their own section, maybe even an entire book. I have long preached to my patients that I’d rather have them eat sugar (yes, even my cancer patients) than eat artificial sweeteners. Aspartame is possibly the most common of these deadly additives so we’ll discuss it here.

An Aspartame molecule is essentially made up of three different components: two natural amino acids (aspartic acid and phenylalanine), and a methyl ester bond, which includes Methanol. The methanol is released from the aspartame compound within hours of consumption and begins traveling through the body via the blood. Once the methyl ester bond is broken, it liberates methyl alcohol or methanol (wood alcohol). The problem with methanol is that it is a toxin that easily passes through your blood-brain barrier and is converted into formaldehyde.

Formaldehyde is dangerous poison that is causing the brain damage. While many animals are able to detoxify methanol in the body, humans do not have this capability. Formaldehyde is a serious neurotoxin and carcinogen. According to the EPA, Methanol is considered a ‘cumulative poison’ which means is accumulates in the body over time because the liver cannot excrete it. The more you consume over time the more poisoning takes place.

Methanol itself is a toxin that destroys the specialized astrocytes that form the myelin sheath covering the nerves in the brain. When this nerve insulation is removed, nerve signals fail. This causes the demyelinating symptoms that are commonly seen in diseases like Phase 3 Lyme, MS, ALS as well as migraines that can include bizarre and inconsistent visual field disruptions, strange upper motor neuron findings and peripheral neuralgias and degeneration.

The EPA has accepted that a limit of consumption of 7.8 mg/day is acceptable. But considering it took the appointment of Donald Rumsfeld,
former board member of the drug company that manufactured Aspartame, to Ronald Reagan’s cabinet for the FDA to immediately approve it for use in food (the very same day Rumsfeld was sworn in), one might want to check the research.

According to Woodrow Monte, Ph.D., R.D., director of the Food Science and Nutrition Laboratory at Arizona State University:

“When diet sodas and soft drinks, sweetened with aspartame, are used to replace fluid loss during exercise and physical exertion in hot climates, the intake of methanol can exceed 250 mg/day or 32 times the Environmental Protection Agency’s recommended limit of consumption for this cumulative toxin.”

Further, he states that due to the lack of a couple of key enzymes, humans are many times more sensitive to the toxic effects of methanol than animals. Therefore, tests of aspartame or methanol on animals do not accurately reflect the danger for humans.

“There are no human or mammalian studies to evaluate the possible mutagenic, teratogenic, or carcinogenic effects of chronic administration of methyl alcohol,” he said.

How can you know you are getting too much Methanol? You may experience headaches, ear buzzing, dizziness, nausea, gastrointestinal disturbances, weakness, vertigo, chills, memory lapses, numbness and shooting pains in the extremities, behavioral disturbances, and neuritis. Another very well known sign of methanol poisoning is vision problems.

It gets worse. One of the amino acids in aspartame, aspartic acid is capable of crossing your blood-brain barrier. Aspartic acid taken in its free form (unbound to other amino acids in whole proteins) significantly raises the blood plasma level of aspartate and glutamate. Easily crossing the blood-brain barrier, aspartate or glutamate kill certain neurons by allowing the influx of too much calcium into the cells. This influx triggers excessive amounts of free radicals, destroying cells. The neural cell damage that can be caused by excessive aspartate and glutamate is why they are referred
to as "excitotoxins." They "excite" or stimulate the neural cells to death. There it attacks your brain cells, creating a form of cellular overstimulation called excitotoxicity, which can lead to cell death.

Artificial sweeteners may just be the single worst things that one can consume legally. They have been linked to every chronic neurological illness including: Multiple sclerosis (MS), ALS, hormonal problems, memory loss, epilepsy, hearing loss, Alzheimer’s, dementia, brain lesions, and neuroendocrine disorders.

Excitotoxins

Excitotoxins are a group of chemicals that when ingested, damage the neurons. The most well known excitotoxin would probably be MSG, an additive that enhances the flavor of food. Excitotoxicity occurs when receptors for the excitatory neurotransmitter glutamate are over-activated. Dr. Russell Blaylock, MD, author of the book “Excitotoxins - the taste that kills” states that excitotoxicity may be involved in spinal cord injury, stroke, traumatic brain injury, hearing loss (through noise overexposure or to toxicity) and in neurodegenerative diseases of the brain) such as multiple sclerosis, Alzheimer’s disease, amyotrophic lateral sclerosis (ALS), and Parkinson's disease.

Excitotoxins are food additives that food producers use to stimulate taste centers in the brain for the purpose of creating an addiction (or at least an increased desire) for the product. Candy, snack food (Doritos have 4 different excitotoxins in its ingredients), Oriental dishes, and prepared meals are notorious for adding excitotoxins to stimulate the brain to desire more. It’s legal and considered ‘good business practice’ by food manufacturers as sales increase.

An interesting article published in the Journal of Neurotoxicology entitled, Excitotoxins in foods, Olney JW, Department of Psychiatry, Washington University School of Medicine, stated, “Evidence is reviewed pertaining to
excitatory neurotoxins (excitotoxins) encountered in human food supply. The most frequently encountered food excitotoxin is glutamate (Glu) which is commercially added to many foods despite evidence that it can freely penetrate certain brain regions and rapidly destroy neurons by hyper-activating the NMDA subtype of Glu receptor. Hypersensitivity of NMDA receptors during development makes the immature nervous system especially sensitive to Glu excitotoxicity. On the other hand, elderly consumers are particularly sensitive to domoic acid, a powerful excitotoxic Glu analog that activates both NMDA and non-NMDA receptors. A high content of domoic acid in shell fish caused a recent food poisoning incident that killed some elderly victims and caused brain damage and memory impairment in others. Neurolathyrism is a crippling neurodegenerative condition associated with ingestion of a legume that naturally contains BOAA, an excitotoxic Glu analog that hyper-activates non-NMDA receptors. Thus, the human food supply is a source of excitotoxins that can damage the brain by one type of mechanism to which immature consumers are hyper-vulnerable, or by other mechanisms to which adult and elderly consumers are peculiarly sensitive."

**Names of ingredients in foods that are excitotoxic:**

- Glutamic acid
- Glutamate
- Monosodium glutamate
- Monopotassium glutamate
- Calcium glutamate
- Monoammonium glutamate
- Magnesium glutamate
- Natrium glutamate
- Yeast extract
- Anything “hydrolyzed”
- Any “hydrolyzed protein”
- Calcium caseinate,
- Sodium caseinate

Ninety-five percent of processed foods contain MSG, and, in the late 1950s, it was even added to baby food. Manufacturers say they have
voluntarily taken it out of the baby food, but they didn’t really remove it; they just called it “hydrolyzed protein” instead.

An excellent book, *Excitotoxins*, by Russell Blaylock, describes how nerve cells either disintegrate or shrivel up in the presence of free glutamic acid if it gets past the blood-brain barrier. The glutamates in MSG are absorbed directly from the mouth to the brain. Some investigators believe that the great increase in violence in this country starting in 1960 is due to the increased use of MSG beginning in the late 1950s, particularly as it was added to baby foods."

Remember: By food industry definition, all MSG is “naturally occurring.” “Natural” doesn’t mean “safe.” “Natural” only means that the ingredient started out in nature, like arsenic and hydrochloric acid.

When you eat real, whole foods, you automatically avoid MSG, aspartame and other excitotoxins. No need to memorize the whole list of different food additives, simply skip the processed junk and EAT REAL FOOD!"

The best advice is to eat food as close to the way God originally created it!

**The Immune System and Antigen Responses**

Autoimmune diseases in general are commonly overlooked in both traditional medicine and alternative healthcare. This is at least in part due to the fact that neither traditional medicine nor the alternative model of care has had much, if any, success in treating them. If we look at the traditional model of care, we find that complete immune suppression is the treatment of choice; its success rate is horrible and the patient is often killed by the medications meant to help them. Alternative solutions have fared better only as far as they didn’t kill the patient.

Success is too often measured by the suppression of symptoms not correcting the cause that is producing an effect. The patient population seems to be okay with this model: Give my symptoms a name and then drug them into oblivion. Unfortunately, most chronic Lyme sufferers have already discovered that this type of mentality is leading us down the road of destruction. The question autoimmune diseased patients really need to
ask is why they became sick in the first place; Lyme patients already know but then fail to treat it as an autoimmune disorder.

We cannot be satisfied with symptom suppression while ignoring the cause; we must never settle for a treatment that does not address the reason the disease exists; and we must become our own advocates, studying and demanding that our healthcare practitioner ‘proves’ their cure with logical understanding of the process itself.

The autoimmune response is an inflammatory response, which produces chemicals called cytokines, part of the body’s natural defense system against outside invaders. The body’s immune system may be separated into a Th1 and a Th2 response. The Th1 response may be thought of as the police force, the body’s initial strike force against an invader or what is called an antigen. When an antigen is present, the Th1 system fires and kills the virus; should the bug be of a nasty persuasion and strong enough to resist the Th1 response, the Th2 (B cell) system kicks in, creates antibodies against the virus, tagging them so appropriate white blood cells can finish them off. Phase 3 Lyme patients have this process stuck in the ‘on’ position, having made antibodies to self-tissue, and every time the immune system revs-up, it destroys the tissue where the antigen is recognized. In the case of Lyme causing inflammation in the brain, it is equivalent to one’s brain literally being on fire!

My opinion is that all chronic health patients should be tested for autoimmune disease and Lyme patients MUST be tested to see if they are in Phase 3. If the testing reveals such any self-antibodies, the battle is to figure out a way to dampen their immune activity. That is why it’s necessary to do all the testing and select the most sensitive tests. “My doctor already tested me for gluten and he said it’s not positive…” “But I had a H. pylori test already…” “My Lyme test was negative…” The blood test for Lyme, gluten and H pylori are highly unreliable and reveal a lot of false negatives.

"Thimerosol is the preservative in immunization shots, so anytime you get an immunization shot you are undergoing the same procedure that in the University Lab we used to give animals auto-immune disease---give a little tiny injection of mercury. And when you get an immunization shot you are getting a little tiny dose of mercury there."--- Hal Huggins DDS
However, testing for self-antibodies is relatively easy. Cyrex Labs has their Array 10 that measures more than enough tissue antibody levels to prove or disprove my point. See my webpage below for a simple, free questionnaire to complete if cost is an issue for you:

http://connersclinic.com/lyme-determining-your-phase/
**TH1 and TH2 Balancing**

There are 2 parts of your immune system, the TH1 and TH2 response. When a person is Auto-Immune, one of these systems is “hyper-firing” or Dominant. Balancing this system goes far in reducing a patient’s symptoms:

- **TH2**
  - These SHOULD be Balanced!

- **TH1**

There are specific dietary changes and supplements that can help and hinder the above response:

**NOTE: ALL AI cases need Vitamin D, Glutathione, and Omega 3 fish oils +**

**Things that stimulate the TH1 response:** (Take these if you are TH2 Dominant)
- Echinacea
- Goldenseal
- Garlic
- Vitamin C
- Any “Immune stimulants”
- Licorice root (Glycyrrhiza)
- Astragalus
- Eleuthero root
- Pau D’Arco
- Cat’s Claw
- Beta-glucans, Maitake, Reishi and most other mushrooms
- Lemon Balm (Melissa officinalis)

**Things that stimulate the TH2 response:** (Take these if you are TH1 Dominant)
- Caffeine
- Green Tea (though it decreases IL-6 and is therefore beneficial)
- Grape Seed Extract
- Herbal barks (Cramp Bark, Pine Bark, and White Willow Bark)
- Lycopene
- Resveratrol
- Pycnogenol

*Therefore, if a patient is TH1 Dominant, they should AVOID TH1 Stimulants and TAKE TH2 Stimulants*
Lyme and strange co-infections - yeast, fungus and mold

Yeasts are single-cell living organisms that are neither animal nor vegetable. They live on the surfaces of all living things, including fruits, vegetables, grains and your skin. They're part of the "microflora" which contributes in various ways to the health of their host with which they normally have a symbiotic relationship. Yeast itself is nutritious and small amounts of yeast gives bread its good yeasty taste. Yeast is a kind of fungus. Mildew, mold, mushrooms, monilia and candida are all names that are used to describe different types of yeast.

Candida albicans is normal in human flora and usually harmless living on the inner warm creases and crevices of the digestive tract and vagina. When your immune system is strong, candida yeasts cause no problems. But when you take broad-spectrum antibiotics for such conditions as acne, respiratory infections or cystitis (bladder infection), these drugs knock out friendly germs while they're knocking out enemies. Even overgrowth usually does not produce difficulty in a healthy child with a properly functioning brain and immune system. However, chronic use of antibiotics provides a less than optimum environment for both bacteria normally present and necessary for effective digestion and leads to mutant forms of the organisms.

Normal bacteria not only aid in digestion, but also create a certain pH of the intestine that helps suppress the growth of pathogens. When the bacteria
are suppressed, the yeast can grow unchecked and Candida albicans is therefore thought to play a role in a number of health problems. These include recurrent infection, fatigue, irritability, hyperactivity, and other neurological symptoms, like short attention span, brain fog, and depression. It is also possible that some of these symptoms will also reflect a decrease in brain activation, especially of the left hemisphere that may be the prime cause of or be associated with other diseases or disorders coexisting with the yeast infection.

Valley Fever (Coccidioidomycosis [kok-sid-e-oy-do-my-co-sis] or "cocci" for short) is an infection of the lungs caused by a fungus that grows in the soil in the southern and central portions of California and the portions of Nevada, Arizona, New Mexico, Texas, and Utah. Valley Fever is also found in parts of Mexico, Central and South America.

Forty percent of people who are infected will develop symptoms such as cough, fever, exhaustion, rash, chest pain, night sweats, joint pain, muscle aches, headaches, weight loss, and lack of appetite. Some symptoms can last for weeks or even months and it can become chronic, lasting years and affecting neural centers, in a small percentage of people. Some people may develop severe disease infection outside the lungs or chronic symptoms. Certain groups of people are at higher risk of developing severe disease. In 2012, 12,920 cases of Valley Fever were reported to the Arizona Department of Health Services.

Mold is a nasty toxin in the body. In my experience, it's as hard to get rid of as chronic Lyme. The trichothecene mycotoxins produced by toxic black mold are neurotoxic. This means they can kill neurons in the brain and impair a person's mental ability. They also cause nervous disorders such as tremors and can cause personality changes such as mood swings and irritability.

Mold expert Dr. Jack Thrasher, estimates that as many as 40 percent of American schools and 25 percent of homes have mold infestations, unbeknownst to the people occupying those buildings. It follows that adverse health effects of mold may be reaching pandemic levels. Growing right along with mold are what are called "gram negative" and "gram positive" bacteria. Just like mold, they require moisture and organic material to thrive and are often found growing in the same places as mold, and the synergistic action between mold and bacteria further worsen
inflammatory health conditions. Oftentimes, bacterial infections occur alongside fungal infections and make treatment more complicated.

According to Dr. Mercola, “Everyone is potentially at risk for toxic mold exposure, regardless of your geographic region, climate, socioeconomic status, race, age or gender. As with most other medical challenges, knowledge is your most powerful weapon. Scientific research has been emerging that connects mold exposure with various health conditions for which the causes were previously unknown. For example, in 2010, Fisk et al published a meta-analysis showing a substantially significant association between residential dampness and mold with respiratory infections and bronchitis.”

A toxic exposure often impairs brain function but more importantly, it is usually exposure over time (prolonged, chronic and often unknown contact) that causes the greatest problem. Symptoms are varied and often unidentified. It's easy for someone to feel "crazy" rather than injured. An article titled "Psychological, Neuropsychological, and Electro cortical Effects of Mixed Mold Exposure" explains some of the implications of a toxic mold exposure.

The study stated, "The pattern of deficits commonly seen in mild traumatic brain injury is very similar to that found in mold-exposed individuals. This phenomenon--clinically referred to as 'brain fog'--is also common in individuals who suffer from multiple chemical sensitivities. Patients reported a loss of their sense of self, of their usual ways of doing things, and even of their personality. They were painfully aware of their deficits and were constantly frustrated by their loss of cognitive efficiency and frequent mistakes. This can be understood as a disturbance or dysfunction of the frontal cortical areas, as implicated in the QEEG findings and the relationship of exposure data to test performance in this study."

"Patients--including multiple family members--exposed to toxic molds reported moderate to severe levels of psychological distress related to the development of a wide range of physical, cognitive, and emotional symptoms. Problems included the frustration of trying to find knowledgeable and appropriate medical care, interference with social and work life, temporary or permanent abandonment of homes and possessions, financial stress, and anxiety and helplessness as a result of continuing poor health. Most of these patients, in absence of any significant
Premorbid psychiatric problems, could be diagnosed as suffering from acute stress, adjustment disorder, or post-traumatic stress."

**Heavy Metal and other Environmental Toxins**

One could say that nearly every Lyme patient has accompanying heavy metal toxicity; usually it’s mercury. This is why I have placed a heavy metal homeopathic detox in my Protocol #4; it is just so prevalent.

There are many heavy metals in our environment both naturally and from pollution. The term “heavy metal” applies to a group of metals with similar chemical properties. Some of these, including copper, iron and zinc, play important roles in our bodies. Others have no known benefit for health.

Examples of these are lead, which is found in paint in old homes as well as many other sources; arsenic, which can be found in well water and wood products; and mercury, which can build up in fish that we eat.

See more about heavy metal and other toxicity at the link below:

Dr. Kevin Conners has earned his Fellowship in Integrative Cancer Therapy, Board Certified in Integrative Cancer Therapy; Fellowship in Anti-Aging, Regenerative and Functional Medicine, Board Certified in Anti-Aging, Functional and Regenerative Medicine; American Academy of Anti-Aging Medicine; currently studying for Certification in Cardiovascular and for Diplomate Status in Neurology, Carrick Institute as well as the Nutritional Diplomate program; graduated in 1986, Northwestern Health Sciences University; Fellowship in Health Research Outcomes, National Institutes of Health; over 100 hours postgraduate study in Autism Spectrum Disorders; practicing Applied Kinesiologist. He is the author of 8 published books including “Stop Fighting Cancer and Start Treating the Cause”, and “Help, My Body is Killing Me”, and numerous videos available on Amazon. Dr. Conners frequently lectures to doctors around the world at various seminars. Personally, Dr. Conners has been married to his high school sweetheart for over 34 years, has five children and soon to have 12 grandchildren.
Chapter Four

Get your ROAR back

1) Reconstruct the barriers

2) Overcome the enemy – Lyme Address the Genes

3) Address the Genes

4) Repave the damaged pathways
1. Reconstruct the Barriers

A break in your body’s protective barriers is what causes problems. Think of your skin; it is a barrier against infection that protects your body from the outside world. Should you cut your arm, a local immune response ensues to kill any possible infective pathogens from damaging the tissue, collagen fibers gather to heal the wound, growth factors (IGF-1) are released to stimulate rapid recovery until the barrier is rebuilt. This is exactly what happens in your gut barrier and your blood-brain barrier (also in your alveoli of your lung but we won’t talk about that now).

If you decided to repeated slash your arm, the barrier is continually breached and pathogens will definitely enter the bloodstream. So it is with the rest of the barriers. Continual damage equals enemy entrance regardless of the gallant efforts of the king’s guards attempting to protect the castle.

Even in Lyme patients, healing the gut barrier should be the first intent of the practitioner. 2000 years ago Hippocrates said it well, "bad digestion is the root of all evil." More recently, Nobel laureate Elie Metchnikoff said: "Death begins in the colon." As I stated in the above chapters, every
doctor must first check patients for hypochlorhydria (decreased HCl production) and supplement with HCl and digestive enzymes.

Compromise in the integrity of the gut barrier causes increased intestinal permeability, or Leaky Gut Syndrome (LGS), causing the tight junctions of the intestinal mucosa to become compromised. The space between the cells becomes widened and permeable so that large, undigested compounds, toxins, and bacteria can pass through the intestinal mucosa and into the circulatory system.

The foreign compounds and organisms then react with the immune system, which sees them as antigens (enemy invaders) that need to be broken down and destroyed. These antigens challenge the immune system and trigger the production of antibodies to neutralize the antigens, which then begins a cycle of inflammation and self-cell damage.

The immune responses, resulting in the production of pro-inflammatory cytokines, are attempting to kill the foreign invaders and this is where we really have problems as many of the foreign invaders (antigens) are NOT living. What if protein particles (peptides) of food (like gluten) are the invaders that pass through the damaged gut wall?

Huge amounts of pro-inflammatory cytokines can flood the system to kill something that CANNOT BE KILLED leading to accelerated destruction of the GI tract cells themselves, other organs and tissues of the body, and (it gets worse), your Th2 response starts making antibodies against your OWN tissue. This is then, by definition, an autoimmune disease!

Phase 3 Lyme patients are ALREADY autoimmune and have created antibodies to numerous self-cells (like brain cells). If a leaky gut cycles-up the immune response every time you eat gluten (for example), your immune system will kill brain cells!

**Every time the immune system fires, it first kills that which you have antibodies – i.e. your OWN CELLS!**

We spoke about what happens to the immune response when we get gut border damage, but what causes the damage? Below is a list of some of
the things that can initially set this vicious cycle in motion and depending on the cause in your case, will dictate the treatment. By this I mean that if casein (the protein in dairy) is a cause of inflammation, you must remove casein for the diet as well as taking the appropriate steps that I outline below if you are going to have success. I can’t tell you how many patients have tried to circumvent this obvious fact because they refuse to change their diet. It’s a bit like trying to rebuild the dike in the middle of Katrina – good luck with that.

• Lyme: Though Lyme doesn’t typically attack the gut, anything is possible and I will guarantee you that nearly every Lyme patient has leaky gut either directly from Lyme or concurrently from another source.
• Gluten: In genetically pre-disposed people, a single dose of gluten, a dietary protein found in wheat, rye, spelt, barley, and malt could cause increased intestinal permeability.
• Casein: It is a protein found in large quantities in cow’s milk.
• Fast Foods: Chemicals in processed foods are extremely irritating.
• Alcohol: Promotes intestinal bacterial growth and permeability.
• Antibiotics: Dramatically upset the intestinal environment.
• Cortico-Steroids: Decrease systemic immune reactions and cause all sorts of problems
• Antacids: They upset acid levels in the stomach necessary for good digestion.
• H Pylori: This extremely common bacterium is the major cause of gastric and duodenal ulcers, cancer, heart disease, and all endothelial damage.
• Intestinal Dysbiosis: This is a condition where microbial imbalances develop in the gut. In small amounts, microbial colonies found in the gut are usually benign or beneficial. When the balance is disturbed due to factors like antibiotic exposure or alcohol misuse, an overgrowth of one or more of the disturbed colonies can develop into a chronic and pervasive imbalance allowing pathogenic microbes to take control.
• Intestinal viruses, mold, Lyme, parasites, and other pathogens.
• Stress: Even normal life stress can predispose us to gut inflammation.

• Blood Sugar Imbalances: They can alter our stress response and trigger multiple pathways leading to leaky gut. Everyone should be tested for dysglycemia. Fasting (morning) blood sugars over 90 can lead to gut problems.

• Sleep disturbances: When we have a normal night sleep, our brain secretes IGF-1, a growth hormone that stimulate a Th1 response in the gut to kill off pathogens that may be present from the day. Poor sleep equals poor gut. We see this commonly with those on swing shift work schedules. This is also part of a common vicious cycle with cortisol, the hippocampus and glucose creation in the liver, which we'll discuss when we talk about testing.

• Hormone Imbalances: They have a major influence on GI Function.
  o The thyroid hormones T4 and T3 have been shown to protect the intestinal mucosal lining from injury.
  o Low levels of T4 and T3 can cause decreased stimulation of gastric and intestinal cells leading to ulcers (from H. pylori infiltration not being killed by the HCl), intestinal permeability, decreased secretion of pancreatic enzymes, impair gall bladder function and decreased bowel motility.
  o Decreased HCL can allow parasites and bacteria to pass through the stomach into the intestines since proper pH of the stomach is the first line of defense against pathogens.
  o Proper levels of Estradiol decrease colonic permeability.
  o Progesterone protects the intestinal lining.
  o Lack of testosterone delays intestinal healing.

Increased cytokine and antibody production in turn, increases intestinal barrier permeability and a vicious cycle ensues due to an exaggerated immune response both within the gut and systemically. These very cytokines, circulating in the blood can then damage the blood-brain barrier even in the absence of circulating toxins!
Some Foods to avoid if you have Leaky Gut/Leaky Brain

- Remove all potentially irritating foods and potential allergens. Most common is gluten, casein (dairy), and soy but should you have a gluten sensitivity, it is common to have immune responses against gluten-like foods as well (chocolate, sesame, hemp, buckwheat, sorghum, millet, amaranth, quinoa, yeast, tapioca, oats, corn, rice, and potato)
- Processed Foods: including canned, boxed and bottled foods
- Sugars: including corn syrup, molasses, honey, chocolate, candy
- High Glycemic Fruits: like potatoes, watermelon, mango, pineapple and raisons
- All Grains: including wheat, oats, rice, soy, corn, wheat germ, quinoa (look up Paleo Diet)
- Gluten Containing Compounds: such as processed salad dressing, ketchup, soy sauce, barbecue sauces, mayonnaise, condiments and modified food starch
- Cow’s milk products: including whey, cheeses, creams, yogurt
- Soy: including soymilk, soy sauce, soy protein, etc.
- Eggs
- Alcohol: including beer, wine, etc.
- Lectins: including nuts, beans, soy, potatoes, tomatoes, eggplant, peppers, peanut oil and soy oil

Foods to eat that can Help Leaky Gut/Leaky Brain

- Most Vegetables: except tomatoes, potatoes (sweet potatoes are okay) and mushrooms
- Fermented Foods: like sauerkraut, kimchi, pickled ginger, kombucha tea, homemade coconut yogurt and pickles though these may need to be added slowly. Also – If genetic testing proves that you have SNP defects in the genes that clear Histamine, fermented foods must be limited
- Meats: including fish, chicken, beef, lamb, etc.
- Low Glycemic Fruits: including apricots, plums, apples, peaches, pears, cherries and berries
- Coconut: including fresh coconut, coconut oil, coconut milk
- Herbal teas, olives, olive oil

The following are some possible things to consider treating gut pathogens. However, we strongly suggest that you consult your doctor before attempting any protocols in this book. Again, this book is meant to be a guide for your doctor to test and treat your condition. Finding out WHY you have a barrier problem is essential in our mind and must not be overlooked. If your doctor doesn’t know how to properly test may I suggest that you find another doctor? Rarely a week goes by that we don’t have a doctor call our office asking to spend a week here to ‘pick our brains’. Personally, I just don’t have much left up there and this is one reason we put this book together and why we hole Clinicals in our office for practitioners. Have your doctor register under the “Doctors only” tab on our website for more in-depth information and details on implementing correction.

**Yeast/Candida Intestinal Dysbiosis**
- Undecylenic Acid
- Caprylic Acid
- Uva Ursi
- Cat's Claw
- Pau D'Arco

**Parasites and other Pathogens**
- Olive Leaf Extract
- Garlic Extract
- Wormwood
- Black Walnut
- Medicinal Mushrooms
- Nopal
- Rhubarb root
- Astragalus
- Echinacea
- Licorice root

**H Pylori**
- Golden Seal Root Extract
- Medicinal Mushrooms
- Oregano Oil Extract
- Barberry Extract
- Grapefruit Seed Extract
- Oregon Grape Root Extract
- Berberis Extract
- Coptis Chinensis Extract
- Yerba Mansa Extract

**Intestinal Microbial Support**
- Saccharomyces Boulardii
- Lactobacillus Sporogenes
- Lactobacilli Acidophilus
- Arabinogalactin

**Restoration and Healthy Maintenance of the Intestinal Mucosa**
- L-Glutamine
- Deglycyrrhizinated Licorice
- Aloe Leaf Extract
- Spanish Moss
- Marshmallow Extract
- Gamma Oryzanol
- Immunoglobulin G, A, M, D, and E

*Learn from yesterday, live for today, hope for tomorrow. The important thing is not to stop questioning.*  
*Albert Einstein*
Gluten Sensitivity

Gluten Sensitivity is a systemic autoimmune disease attacking everywhere the gliadin peptides (protein particles) can be found. Gluten, a long-chain protein found in many grains is a key factor in most GI and autoimmune conditions. It has been said that the majority of the US population have undiagnosed Gluten Sensitivity. We FIRMLY believe, even if you test negative for gluten sensitivity, that all patients with brain-based issues REMOVE ALL GLUTEN FROM THEIR DIET. It is just too inflammatory!

So, it is essential to learn what foods contain gluten. I’ll include a list below but I strongly suggest that you simply Google “gluten free diet” or “gluten free living” and you will get a plethora of information.

Gluten Containing Grains: Wheat, Spelt, Kamut, Oats (technically not a gluten, but usually gluten contaminated when not from gluten-free farms so you MUST eat only certified Gluten-free oats), Rye, and Barley.
Some Hidden Sources of Gluten: Soy Sauce, Food Starches, Food Emulsifiers, Artificial Food Colorings, Malt extract, flavor and syrup, Dextrins

Chronic Stress leads to a breakdown of immune tolerance.

**Gluten Sensitivity Testing**

For the most part, Gluten Sensitivity testing is insufficient and misses many cases of Gluten Sensitivity. Most lab testing, (whether it be blood, saliva or stool) measures only antibodies to Alpha-Gliadin (one specific component of wheat protein). However, wheat protein consists of other components, all of which have the capacity to challenge the immune system.

A new, state-of-the-art test from Cyrex Labs, measures immune reactions to 24 different components found in gluten-containing grains, including the de-aminated glutens found in processed wheat and wheat germ. Another Lab – 23andme, measures genetic markers that are ‘turned-on’ with gluten sensitivity and can be helpful in diagnosing the entire family with one test.

If sensitivity to gluten or any of its components is discovered, total abstinence is necessary. The inflammatory responses to even a single portion of gluten, in a sensitive individual, can set forward a cascade of immunological reactions that can last upwards to eight months.

Once the gut barrier has been breached, enemies are circulating in the blood and can damage the next barrier – the vessel endothelial layer. The blood vessel’s barrier is a single-celled intimal layer that has thousands of different receptors that “turn-on” different functions and allow nutrients to pass.

Vascular injury can come from a near infinite number of sources. Chemical insult can come from Bio-toxins, Nutritional Toxins, and Metabolic Sterile Antigens (normal cellular waste). Bio-Mechanical insult can result from changes in hemodynamics (BP, Blood flow…). Any insult results in three possible outcomes: Local inflammation, Oxidative stress, or autoimmune dysfunction; all three of these are actually correct, though exaggerated responses attempting to heal the vessel wall.
We believe that though the patient may not need to understand the mechanisms involved, the doctor should become familiar with endothelial dysfunction to better think-through strategic methods of repair. So I’m going to bore you with a lot of cellular biology for a few pages.

**Our Step-up program for healing the Barriers (and everything else)**

In our office, healing barriers has become a priority. However, we’ve found that there exists a separation between that which patients *should* do and that which they are *willing* to do. This being true, we’ve developed a sort of hierarchy to healing the gut, which, if you read the list below, starts with the minimal approach a patient may choose and ends with the most radical. Understand that we typically don’t explain these choices to our patients without giving them our best recommendation based on our clinical testing, but ultimately, the patient must choose the level of commitment, which most assuredly reflects in their level of success.

1. **Getting off of the ‘standard American diet’ (SAD).** This means that the patient starts to make dietary changes as outlined in this book and eliminates artificial sweeteners, decreases sugar consumption, stops eating fast food, eats more organic food, and learns to read labels and become conscious of what they put into their mouth. Most of our patients have already passed this threshold before walking through our doors as they have been to countless doctors and read, studied, searched and attempted as many things as possible to achieve health. Honestly, if a sick person won’t make these initial simple changes, the promise of health will elude them. We highly recommend the Weston A. Price Foundation for more information on what was originally intended as a diet for mankind. (see www.westonaprice.org)

2. **Elimination of food sensitivities and inflammatory consumables.** One need not even undergo expensive testing to determine food sensitivities as ill individuals can just presume they exist. Foods that patients choosing this second level must avoid include gluten (wheat, rye, spelt, malt, barley) and possibly dairy (though we do recommend raw dairy once gut healing has begun).
3. Going completely Paleo. A Paleo diet eliminates all grains due to their inflammatory nature. Though one may not need to stay “Paleo” forever, through the healing process, it is highly recommended. There are numerous books and websites that give the reader details in living this lifestyle.

4. The GAPS diet. Below you’ll find our version of the GAPS diet that Dr. Natasha Campbell-McBride so eloquently explains in her book “Gut and Psychology Syndrome”. This diet is high in the fat necessary to heal epithelial layers (the skin of both your insides and outsides).

5. Adding Prebiotics. Prebiotics are part of our GUT CHECK protocol that helps your gut cells produce the mucous layer that houses the microbiota. Many complain that they’ve taken probiotics for years with little success. Genetic testing often reveals that these people have SNP defects in their FUT2 gene family. This gene allows gut epithelial cells to make the mucous layer where probiotics live. A poor mucous layer is equivalent to having no apartment complexes available to house the good microbes. Taking a prebiotic is essential for these people.


7. Fecal transplantation. This is the most radical yet often life-saving approach to healing the gut barrier, which we recommend yet beyond the scope of this book to discuss.

In our office, none of the above approaches are incorporated without testing, correcting causes, utilizing specific nutrients such as HCl, digestive enzymes, probiotics, etc. It is important to note that while a patient or doctor may use this book as a guideline of possible care paths, it is NOT a protocol.
2) Overcome the Enemy

Dr. Conners CLEAR-LYME Protocols

Note: All Dr. Conners protocols are available for purchase at the link below:

http://connersclinic.com/dr-conners-clear-lyme-protocols/

Protocols for treating Phase 1 and 2 Lyme (NOT to be used if you are in Phase 3):

Dr. Conners CLEAR-LYME Protocol #1 – for those needing an optimal cleanse and healing

Kit includes:

1. 14 Day Cleanse
   • Clear-Lyme Cleanse is a comprehensive, science-based nutritional program designed to support safe and effective detoxification. This is accomplished by providing the nutrients needed to support and balance phase I and II metabolic
pathways and to promote healthy liver function and elimination. Everything is consolidated into packets to make the program easy to follow and to ensure that individuals on the program do not miss any necessary nutrients. Each 14 day kit provides:

- 28 - single serving Clear-Lyme Cleanse functional food powder drink mix packets
- 28 - capsule packets containing:
  - 3 - Clear-Lyme -D-Tox™ capsules
  - 1 - Clear-Lyme enzyme capsule
- Program Guidebook - detailed patient guide which includes a supplement schedule, sample menus, and suggested food and snack options

2. Followed by a 60 day supply of the following:

- Clear-Lyme Mod-A has been formulated to help balance a healthy inflammatory response, which is necessary in order to help maintain optimal immune function in the body. It features ParActin®, an extract of the herb Andrographis paniculata, which has been shown to modulate immune, inflammatory and oxidative pathways. This product also contains the monosaccharide n-acetyl glucosamine along with curcumin, a polyphenolic compound extract from the spice turmeric. Both of these compounds help to support a healthy inflammatory response.
- Clear-Lyme Immuno Plus is an herbal formula that is designed to support healthy immune system function during cold and flu season. It contains herbs that support normal natural killer (NK) cell activity and the balance of cytokines, which are the regulatory proteins released by immune cells as part of a normal immune system response. The standardized herbs in this formula contain optimal and consistent amounts of the most active ingredients. Clear-Lyme Immuno Plus is suitable for long term use and for all age groups.
- Olive Leaf Extract contains significant quantities of phenolic compounds, such as oleuropein and hydroxytyrosol that have
been shown to have antimicrobial properties, antioxidant power, and have the ability to support phagocytosis. It can also be used to support the health of the cardiovascular system.

- **Clear-Lyme Berberine** supplies high potency berberine combined with alpha lipoic acid to help support optimal blood sugar and insulin levels, cardiovascular health, and liver health. Berberine is an alkaloid compound found in the roots, rhizomes, stems and bark of several plants commonly used in botanical and Chinese medicine, such as goldenseal, Oregon grape, barberry, and *Berberis aristata*. Lipoic acid is best known for its antioxidant properties and its ability to support healthy insulin secretion and sensitivity. It is also a key cofactor for mitochondrial enzymes involved in cellular metabolism and energy (ATP) production.

**Dr. Conners CLEAR-LYME Protocol #2**

This is for those who have completed Protocol #1 or just desire to start slower. This does not contain a cleanse.

**Kit includes: (60 day supply)**

- **Clear-Lyme Mod-A** - This has been formulated to help balance a healthy inflammatory response, which is necessary in order to help maintain optimal immune function in the body. It features ParActin®, an extract of the herb *Andrographis paniculata*, which has been shown to modulate immune, inflammatory and oxidative pathways. This product also contains the monosaccharide n-acetyl glucosamine along with curcumin, a polyphenolic compound extract from the spice turmeric. Both of these compounds help to support a healthy inflammatory response.

- **Clear-Lyme Immuno Plus** - This is an herbal formula that is designed to support healthy immune system function during
cold and flu season. It contains herbs that support normal natural killer (NK) cell activity and the balance of cytokines, which are the regulatory proteins released by immune cells as part of a normal immune system response. The standardized herbs in this formula contain optimal and consistent amounts of the most active ingredients. Clear-Lyme Immuno Plus is suitable for long-term use and for all age groups.

• Clear-Lyme Adaptogen is a combination of standardized herbs and nutrients, which are known for rejuvenating the adrenals. This product is designed to promote healthy cortisol levels, hypothalamic and pituitary function (HPTA axis), and catecholamine production (dopamine, norepinephrine, and epinephrine).

• Clear B - This very powerful B vitamin combination formula supplies most of the B vitamins in their coenzymated forms, so the body does not have to phosphorylate them in order to be used in biochemical reactions. This formula also includes our proprietary NatureFolate™ blend of active isomer naturally occurring folates. TMG and choline are included to support methylation.

• Clear Mins - This is ideal for use when mineral replenishment is desired. This product is iron-free and utilizes the finest chelated minerals from Albion Advanced Nutrition for optimal absorption.

• Curcu-Clear - A patent pending, highly bioavailable curcuminoid formulation. It contains a unique combination of three bioactive, health-promoting curcuminoids: curcumin, bisdemethoxy curcumin and demethoxy curcumin, along with turmeric oil. The three curcuminoids are the strongest, most protective and best researched constituents of the turmeric root. Curcum-Evail™ is manufactured utilizing the Designs for Health Evail™ process, which helps to optimize the absorption rate of the curcuminoids while reducing their absorption time. This proprietary process uses all-natural ingredients, including vitamin E, medium chain
triglycerides (MCT) and lecithin without the use of potentially harmful surfactants.

Protocols for treating Phase 3 Lyme (Phase 1 and 2 Lyme can ALSO use these):

Dr. Conners CLEAR-LYME Protocol #3 – This is for those who have Phase 3 Lyme and can tolerate a bit more aggressive approach. Most Phase 3 patients do well with Protocol 3 but those super-sensitive types should start with Protocol #4.

Kit includes one bottle of each (30-90 day supply depending on dosage):
- ACS 200 - The leading silver-based supplement in multiple independent comparison studies, ACS 200 Extra Strength achieves 99.9999% (complete) kill against Borrelia burgdorferi, Powassan virus, Rhinovirus, Legionella pneumophila, Pseudomonas aeruginosa, Salmonella bongori, Candida albicans & MRSA in less than 3 minutes as proven via independently derived in vitro, benchmark kill-time studies. ACS 200 Extra Strength is the only antimicrobial proven to kill Borrelia Burgdorferi, the Lymes Disease associated pathogen. When choosing an immune system support formula, efficacy and safety are the only two factors that truly matter. Without harming the gut flora ACS 200 Extra Strength provides fast and significant relief.
• ACZ Nano - A powerful oral chelating agent, ACZ nano Extra Strength selectively and irreversibly binds and removes toxic heavy metals, such as Mercury and Lead, chemical toxins, VOC’s, radioactive toxins and free radicals of all types through the urinary tract, without removing vital nutrients. These results have been verified in multiple, independent urine challenge studies. ACZ nano Extra Strength is the only detoxification product formulated to remove fluorine and chlorine, two of the strongest oxidizing agents known and found in most drinking water.

• ACG Glutathione - As the most important intracellular antioxidant, GSH regulates all other antioxidants while preventing damage to important cellular components caused by reactive oxygen species, such as free radicals and peroxides. A major advancement in Glutathione supplementation, ACG Glutathione Extra Strength is an intra-oral spray GSH that tastes great and has been proven by independent clinical research to effectively increase intracellular levels of GSH by over 10% in only 7 hours.

• Dr. Conners Personal Homeopathic Lyme Formula 1

**Dr. Conners CLEAR-LYME Protocol #4** – This is for those who have Phase 3 Lyme who are more sensitive and seem to react harshly to most things.

Kit includes one bottle of each (60-120 day supply depending on dosage):
  • Dr. Conners Personal Homeopathic Lyme Formula 1
• Dr. Conners Personal Homeopathic Lyme Formula 2
• Dr. Conners Personal Homeopathic Lyme Formula 3
• Methyl Homeopathic Liquescence Formula to support detoxification and metabolic pathways
Other things we may use for our patients:

1. Genetic Testing –

Each person has a set of genes - about 20,000 in all. The differences between people come from slight variations in these genes. For example, a person with red hair doesn't have the "red hair gene" while a person with brown hair has the "brown hair gene." Instead, all people have genes for hair color, and different versions of these genes dictate whether someone will be a redhead or a brunette.

Your body contains 50 trillion cells, and almost every one of them contains the complete set of instructions for making you. These instructions are encoded in your DNA.

To make new cells, an existing cell divides in two. But first it copies its DNA so the new cells will each have a complete set of genetic instructions. For a multitude of reasons, cells sometimes make mistakes during the copying process - kind of like typos. These typos lead to variations in the DNA sequence at particular locations, called single nucleotide polymorphisms, or SNPs (pronounced "snips").

SNPs can generate biological variation between people by causing differences in the recipes for proteins that are written in genes. Those differences can in turn influence a variety of traits such as appearance, disease susceptibility, response to drugs, ability to detoxify quickly or slowly, ability to heal, kill pathogens, and even increase your risk of cancer.

2. Rife Technology (Energy Medicine) –

All cells are capable of receiving a countless number of frequencies that are stored within the cytoplasm of each cell, which itself, consists of H2O. Hydrogen and Oxygen hold the electromagnetic charges, and the cellular memory is then processed within the DNA of each cell. Vital life energy (Bio-energy) fills every cell within the human body, which controls all
metabolic processes, including biochemical changes that occur within the cells. It controls the utilization of nutritional substances, and the functioning of all body systems including the immune system.

We predicate that during periods of stress, be it physical or mental stress, this increases the cell’s state of vulnerability to discordant frequencies (stressors). For example, electromagnetic fields such as mobile phones, microwaves, computers, household wiring etc., can enter cells through the Integral membrane proteins in the cell membrane and store in the cytoplasm, altering the cell’s homeostasis. Cells are most vulnerable during periods of stress: the greater the stress, the greater the incidence of acquiring homeostatic imbalance. By recognizing discordant frequencies within cells, the body is more capable of achieving homeostasis. Every disease state and pathogen has its associated harmonic and disharmonic frequencies. Generally speaking, harmonic frequencies maintain health (homeostasis); promote growth and healing, while disharmonic frequencies produce illness and death (homeostatic imbalance).

Everything is ENERGY
“*The cell is a machine driven by energy. It can thus be approached by studying matter, or by studying energy. In every culture and in every medical tradition before ours, healing was accomplished by moving energy.*”

----Albert Szent-Gyorgyi, Nobel Laureate in Medicine

We ONLY suggest using the TrueRife brand of Rife equipment. Most of our Cancer and Chronic Lyme patients go home with this machine that we personally program for the patient. www.ConnersClinic.com

New research introduces a radical understanding of cell science. New biology concepts reveal that human beings control their genome rather
than being controlled by it. It is now recognized that environmental frequencies and more specifically, our perception or interpretation of the environment, directly controls the activity of our genes. This new paradigm of “bio-electrical interaction” has given us a better understanding of how the human body uses energy to heal itself and regulate its activities. It has also enabled science to reevaluate previously discarded medical therapies and to explore new ones based on this interaction.

During the 1990s, three Nobel Prize winners in medicine in the field of advanced medical research revealed that the primary function of DNA lies not in protein synthesis, as widely believed, but in electromagnetic energy reception and transmission. Less than three percent of DNA’s function is in protein formulation; more than ninety percent of the DNA functions in the realm of bioelectric signaling. One might say that electromagnetism is fundamentally responsible for all life, and everything in the physical universe. It is also in the spiritual force or energy that gives rise to all matter.


3. Other Therapies and Technology –

We utilize multiple other therapies available to local patients including:

- Hyperthermia – FIR hyperthermia is Japanese technology utilized also in the Mexican and German cancer clinics
- Neurofeedback – NFB can help balance brain activity and reduce inflammation, bring clarity, balance neurotransmitters, reduce brain fog, improve memory, and improve overall function
- Pulsed Electromagnetic Frequency – PEMF is a tool to bring back cell voltage and improve cell membrane health
- Specific, personalized testing that goes far beyond this book
3) Address the Genes

Looking at and addressing possible genetic SNP defects in metabolic pathways is essential. These defects lead to variations in the DNA sequence at particular locations, called single nucleotide polymorphisms, or SNPs (pronounced "snips").

SNPs can generate biological variation between people by causing differences in the recipes for proteins that are written in genes. Those differences can in turn influence a variety of traits such as appearance, disease susceptibility, response to drugs, ability to detoxify quickly or slowly, ability to heal, kill pathogens, and even increase your risk of cancer.

Looking at genetic SNP tests help us shape your specific treatment protocol to best aide your ability to recover from disease. While we "never treat the SNP", we may utilize the information to better treat YOU. Genetic testing for those with Lyme is VERY IMPORTANT. It can tell us an enormous amount of data that can help us better manage their case. Honestly, I recommend genetic testing for EVERY patient I consult. Lyme patients in particular need to know if they have SNP defects in their cytochrome P450, SOD, and Glutathione pathways. For example, SOD SNPs leave excess superoxide ions in tissues that bind to a chemical called cytokine-inducible nitric oxide that is in abundance in chronic Lyme patients. This forms a highly reactive and dangerous compound called peroxynitrate that can actually be the CAUSE of many of the symptoms Phase 2 and 3 Lyme patients suffer from!

See the videos on the below linked page: http://connersclinic.com/genetic-snp-testing/

4) Re-paving the Pathways
The Problem with the Frontal Lobes

Many symptoms that Lyme Brain patients struggle with like Anxiety, Depression, OCD and the rest of the ASD’s are primarily frontal lobe disorders. Though there may be many additional reasons why this is occurring (as we discussed with the genetic component), correction of the imbalance must accompany the metabolic correction.

Elkhonin Goldberg, in his classis book “The Executive Brain” reverberates, “Frontal lobes are critical for every successful learning process, for motivation and attention. Today we are increasingly aware of subtle disorders afflicting both children and adults – attention deficit disorders (ADD) and attention deficit hyperactivity disorder (ADHD)…how they are caused by subtle dysfunction of the frontal lobes and the pathways connecting them to other parts of the brain.”
The frontal lobes are the executive of the brain, the CEO of all human function. They are concerned with all sophisticated operations of information processing, language processing, and abstract thought and general reasoning. They are truly what make you human. Your dog does have frontal lobes but they are relatively small by comparison. Dogs receive less neuronal firing of the frontal cortex back onto the midbrain (the part of the brain responsible for instinctual function) and therefore are more governed by instinctual reflexes. As much as I try to teach my German Sheppard NOT to bark at passersby or the squirrel at the feeder, she has a difficult time suppressing the instinctual protective features bred into her.

A properly functioning frontal cortex is what makes us human. It regulates movement, sorts all cognitive input, balances emotion responses, and decides on appropriate behavior. The most anterior portion (most frontal) is called the pre-frontal cortex and it is the boss of the brain and the connections it has with the older midbrain are what Lyme inflammation most commonly damages.

“Never stop asking why”

Lyme sufferers have long been lumped into having a psychiatric illness because, well, many do. However, treating the symptoms of an autoimmune attack on the brain (depression, anxiety, chronic fatigue, dementia, etc.) with medications do nothing to address the true cause. For over 40 years the accepted medical treatment for such neurological symptoms has been the use of medications. Many disadvantages of this approach are widely known, such as exceedingly high cost and unwanted side effects, which ultimately lead to a decrease in quality of life instead of an improvement. Patients and families are progressively frustrated with a one-size-fits-all treatment that fails to address the actual cause of the problem and fails ask the question, “Why?”

Why does a person have anxiety? Why does a child suffer from ADHD? Dissatisfaction with the poor standard of care for managing neurological disease is ubiquitous and increasing because it is based on addressing only the “what” (a.k.a. the symptom), then covering up these symptoms
with drugs. We make no forward progress when the “why” is ignored and only the “what” is focused upon. Thankfully, there are other non-invasive and non-toxic ways to change the brain that identify and treat the root cause.

A new and exciting field called Neurofeedback has emerged and is gaining positive results for many people with debilitating neurological symptoms and conditions. The success of Neurofeedback is based on the fact that the brain has the ability to create new connections, in a process referred to as “Neuroplasticity.” Neurofeedback sessions usually last around 30 minutes and in that time the correct pathway/brainwaves are stimulated hundreds of times. Through Neuroplasticity, the brain is essentially trained to continue to fire this desirable path/brainwave – literally changing the adverse behavior/symptoms. Neuroplasticity also allows Neurofeedback to change timing and activation patterns in many areas of the brain simultaneously. Incredibly, this leads to global improvements in attention, memory, emotional stability, and mental flexibility.

This type of therapy addresses underlying causes by restoring normal brainwave functions long-term. The sole use of prescription medications to cover up symptoms can now be thought of as an out-of-date practice.

NEUROFEEDBACK HISTORY

“A discovery made before its time”

In the 1930’s, Germany was an unfriendly place for anyone with emotional issues. Experimentation in brain activity centered more on, “why one race is superior to another” and less on helping the helpless. Most doctors with any morals, including Albert Einstein and Sigmund Freud, fled Nazi control as they could see the writing on the wall. Hans Berger stayed. While he should be no one’s hero, it was he who was the first to record brain waves in an epileptic patient during a seizure. His discoveries, largely on psychiatric patients at the University of Jena in Berlin, paved the way for understanding that the human brain emits signals, waves of electricity, much like a radio transmitter.
These waves, energized by our thoughts, change with sensory reception and with mental focus. Berger initially found many subjects to test and compare differences in this ‘radio’ activity until the Nazi “social hygiene” process soon exterminated most those considered mentally ill, even those in their own race. By 1941, over seventy thousand German patients had been euthanized and Berger found himself in a deeper depression than his test subjects. Whether it was from deep remorse over all he saw or his own mental illness, Berger soon ended his own life in the same sanatorium where he worked.

The great irony of Berger’s life is that the brain waves he discovered are now understood to be a key in relieving the depression from which he suffered. Though he obviously couldn’t realize it at the time, this electric field he measured paints a picture. Like the discovery of a new color and canvas that someone later would apply in ways, and shapes, and forms that make us stop and look and experience beauty, so Berger’s crude findings allowed others to use this enlightenment to help mankind. God is peculiar that way.

Patients with Lyme disease, Alzheimer’s disease and Multiple Sclerosis show marked dysfunctional changes in brain waves. Also, those with Depression, Anxiety, and every ASD patient will show aberrancies in their brain waves. But far from what Berger and even much later brain scientists thought, the neurons are not the only brain structure conducting electricity. Glial cells also affect brain activity. Brain waves arise from a combined electrical frequency much like a crowd at a football stadium; individual conversations are silenced from the collective whole. While between plays, a noisy purr clutters in the background but as soon as the running back breaks through the defensive wall, the crowd unites in a purposeful cheer. So to your brain waves, a collection of noise from a variety of clutter becomes more organized and precise given a stimuli or intent.
We measure electrical flow, like a current; as it depolarizes a neuronal axon it must return to form a circuit. It does so by passing through glial cells surging in waves that oscillate in patterns depending on activity. This collective roar is what we measure on an EEG. When we are relaxed, brain waves whisper in a slow wave pattern; when there is activity, the waves crash upon the shore colliding together in a more haphazard pattern.

Though glial cells, specifically astrocytes, do not generate an electrical impulse, their steady electrical hum comes from discharges from the neurons. Many disorders of sleep, hypoxia, hypoglycemia, and even stroke are associated with gradual changes in glial cells ability to conduct voltage. These changes in glial function and more gross changes in neuronal conduction are what we assess in an EEG. A “Brain Map/Scan” gives us a picture of all this commotion. Though EEG and subsequent Neurofeedback treatment doesn’t tell us “why”, it points to “what” and gives us a “how” to correct things.

Neurofeedback is non-invasive, non-painful technique for monitoring and improving brain activity for both children and adults regardless of cause. It is direct training of brain function, by which the brain learns to function more efficiently, basically, re-wiring pathways. It is a way to reward the brain for changing its own activity to more appropriate patterns. This is a gradual learning process. It applies to any aspect of brain function that we can measure. Neurofeedback is training in self-regulation, helping connect the cortical lobes to deeper centers of the brain. Self-regulation is a necessary part of good brain function as it allows the system (the central nervous system) to function better.

Neurofeedback has been shown to be effective, clinically for depression, anxiety, OCD, dementia and more. The growth of studies exploring and
demonstrating the utilization of NF has exploded over the past 15 years, with references in the hundreds of thousands in the Library of National Medicine. Dr. Robert Turner, MD, an expert on neurotherapy, which includes Neurofeedback, says, “Now is the time, the ‘coming of age,’ of the field of neurotherapy, because it is now being shown to be the most comprehensive form of ‘integrative medicine’ mechanistically, functionally, and clinically validated and applied.”

Neurofeedback can improve cognitive performance in healthy patients and those with conditions that affect working memory, attention, and executive functions such as those with major depressive disorder (MDD). Behavioral results show the effectiveness of this intervention in a variety of cerebral functions. Those with depression are able to make great improvements with a success rate of up to 90%, as demonstrated by The Beck Depression Inventory. Using this international standardized tool, results are not simply anecdotal but scientific.

Neurofeedback research has documented its value in the treatment of a variety of symptoms relevant to a brain injury population; including seizures, memory, concentration and attention, unstable mood, impulsiveness, anxiety, depression, sleep issues, and even anosmia and physical balance. Preliminary research on neurofeedback treatment of TBI is very encouraging…

- Neurofeedback Treatment for Traumatic Brain Injury, By: D. Corydon

We utilize both in-office neurofeedback as well as at-home units that patients can purchase and use everyday. While in-office therapy can be more effective to begin with as it is easy for us to oversee, the most cost-effective approach for patients is to own their own unit.

Since we see patients from around the globe, we place many home neurofeedback units. They are relatively easy to operate with a little training and we program the units appropriately for best results.

Contact us for more information – 651-739-1248
Lyme Brain

What to do when you’re ‘going crazy’

Section 5

Dr. Kevin Conners

Dr. Kevin Conners has earned his Fellowship in Integrative Cancer Therapy, Board Certified in Integrative Cancer Therapy; Fellowship in Anti-Aging, Regenerative and Functional Medicine, Board Certified in Anti-Aging, Functional and Regenerative Medicine; American Academy of Anti-Aging Medicine; currently studying for Certification in Cardiovascular and for Diplomate Status in Neurology, Carrick Institute as well as the Nutritional Diplomate program; graduated in 1986, Northwestern Health Sciences University; Fellowship in Health Research Outcomes, National Institutes of Health; over 100 hours postgraduate study in Autism Spectrum Disorders; practicing Applied Kinesiologist. He is the author of 8 published books including “Stop Fighting Cancer and Start Treating the Cause”, and “Help, My Body is KI111ng Me”, and numerous videos available on Amazon. Dr. Conners frequently lectures to doctors around the world at various seminars. Personally, Dr. Conners has been married to his high school sweetheart for over 34 years, has five children and soon to have 12 grandchildren.

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www.ConnersClinic.com
“Do not be conformed to this world (this age),
fashioned after and adapted to its external,
superficial customs], but be transformed (changed)
by the [entire] renewal of your mind [by its new
ideals and its new attitude], so that you may prove
[for yourselves] what is the good and acceptable and
perfect will of God, even the thing which is good and
acceptable and perfect [in His sight for you].”
-Romans 12:2 (Amplified Version)
Everything else in this book speaks of organic causes to brain inflammation and dysfunction. To ignore the emotional/spiritual component is to ignore the soul and, in my humble opinion, may ignore the root cause of the disorder for many. Where science argues over the differences between the mind and the brain, I maintain that there are pieces of creation beyond our understanding and things that can only be comprehended through faith.

Ultimate brain-based therapy necessitates a renewal of the mind, not just a change in the brain. Dead people still have a brain, intact with every organic neuron, glial cell and neurochemical, yet their soul is absent. Renewing the brain is useless; ask anyone with a late-stage Alzheimer parent whose body is capable of many more years yet whose mind is gone, left sadly in a soul-less-like state. There are few things more heartbreaking. This chapter is about renewing one’s mind and I challenge you to read it fully even if you have different spiritual beliefs. As in everything, you may glean helpful hints to change your life.

If you think that the following is just an esoteric game – think again. What is contained in this chapter IS the most powerful brain therapy! Neurologically, as mentioned in previous chapters, there is a complicated pathway that runs from your dorsolateral prefrontal cortex (DLPC) to the midbrain (Red Nucleus), to the cerebellum (Dentate Nucleus) and back to the prefrontal cortex. It is the MOST powerful pathway to stimulate the cerebellum and the prefrontal structures and it involves one thing – THOUGHT.

What you think about is powerful. Tens of thousands of books have been written about self-talk, goals and affirmations from every perspective imaginable. It’s the “secret of the ages” that is no secret at all. It is simply the way God made us – He gave us a cortico-rubro-dento-cortico pathway that reinforces ANY thoughts into stronger highways.

Let me give you an example. Should I decide (in my DLPC) that the world is a horrible place and that life is meaningless, my thoughts revolve around such a decision. My brain fires this pathway described and it becomes paved, over time, into a 2-lane highway. Pretty soon, I am a depressed person easily able to equate everything in life through the filter of the paved pathways that say ‘life is horrible’. I am literally becoming a self-fulfilling prophecy.
And it gets worse. As these neural pathways regarding recurrent thought patterns mold our personality, it affects another part of our brain called the Reticular Activating System (RAS) that is responsible for alerting (waking) our brain to necessary stimuli. A good example of this might be the last time you purchased a car (let’s say it was a Toyota), you subsequently notice, over the course of the next few months, all the other Toyotas driving around. Your brain was occupied about the decision of buying a Toyota so that, unconsciously, your cortico-rubro-dento-cortico pathway was firing, reinforcing your decision on such a large purchase and now your RAS takes acute notice of all the Toyotas you encounter thereby justifying the wonderful decision you made!

Put this understanding into our previous example and the person that once ruminated on the thought that the world is horrible now only sees the horrible in everything! “People are mean, nobody cares, life’s a bummer,” is all this person notices as their Reticular Activating System simple ‘turns-on’ the brain to the pathways that have been paved.

Do you ‘become your thoughts’ as many self-help books proclaim? Well, maybe not, because most boys would become girls, but your thoughts are your most powerful ally or your most dangerous foe! What you think about becomes a pathway more easily traveled the more you think about it. This is the neural pathway of HABIT. When God said that sin comes from a “debased mind” (Rom 1:28) He wasn’t being mean; He just knew the pathway! He also encouraged us by saying that we have a choice to, “live according to the Spirit (then you must purposefully) set your minds on the things of the Spirit.” (Rom 8:5)

Even in the worst situations and the gravest conditions, even if everything in life is flying out of our control, there is one thing that we CAN control, though it takes conscious effort – our thoughts! We will ONLY, “be transformed by the renewal of your mind.” (Rom 12:2) There is NO OTHER WAY!

Three Breakable Barriers

1. Addiction/Control/Co-dependency = trying to find purpose and pleasure from anything other than God’s designed plan for you.
The emotional aspect of addiction manifests as a drive towards a destructive behavior that is erroneously supplying a need that can be found in or was already fulfilled with God’s finished work. In earlier chapters we discussed the neural loops and chemical drives that make addictions so undeniable, but root, spiritual causes stem from unmet needs, lingering pain, and “heart holes” paved with external behaviors. I believe that brain-based therapy and Neurofeedback is essential for addictions but we must also fill the spiritual hole.

Those with ‘control issues’ simply subconsciously believe that exerting power OVER another brings peace. “Power-over” individuals simply squash others, many times thinking they are doing ‘good’; they are ‘fixing people’. I had a doctor in my office a few months back who was very ill and was seeing me as a patient. Some of his initial statement as he entered our busy office was to tell my staff what they should be doing. He pulled one aside and told her that he would ‘coach her’ on how to better arrange the bookcases so the ‘energy was correct’. “Power-over” people have few boundaries when it comes to exerting opinion and when confronted, everyone else just “misunderstood” their intentions. Here are some telltale signs that you have put yourself in power over another though most with this problem will not be able to recognize it in themselves:

- You believe your needs are more important or you deserve to have them met before others.
- You announce what is going to happen rather than negotiate to consider the needs of others. You dictate your process rather than discuss all ideas.
- You give unsolicited advice about things not falling in your area of authority.
- You become angry and resentful if someone doesn’t follow your advice or do things in a way you expect.
- You blame others when confronted or blame ‘miscommunication’ in order to avoid personal responsibility when hurting others.
- You view the other as incapable, pitiful, and in need of your rescuing.
• You imagine you know what is right for another without asking them.
• You think a lot of about what this person or group of people should and shouldn't do.
• There tends to be a trail of injured people behind and around you.

Co-dependency is wanting someone to do for you what you could/should do for yourself. A codependent relationship includes both a victim-player and a savior-player. Doctors, especially alternative ones, tend to develop codependent relationships with patients as they may be the only person that gives needed attention and fulfills unmet needs. This is the untold goal of all product sales. If Coca Cola can create a codependent relationship with the consumer, they meet perceived needs and produce buyers that ‘cannot live without’ their fix. Pharmaceutical companies thrive on codependency with ads that promise every desired feeling and apparent want.

Our office purposefully and deliberately attempts to protect both us and the patient from such relationships. Though cancer patients seemingly ‘need’ someone to guide and lead them through a scary and often dark time, it is our role to point them to their ONLY true hope. I am NOT anyone’s savior; I am just another person occupying a destiny designed by the Creator for a specific purpose. I seek His wisdom to heal and depend on His Spirit flowing through me to accomplish anything. Patients don’t need me; once they flip to needing me, I need to point them back to their Savior.

2. FEAR and JUDGMENT = the basis of man’s inherited sin and what keeps us from experiencing all of God’s blessings.

It is impossible, in the flesh, to live this life and not be tempted to judge every situation, every circumstance, everyone around us and even ourselves. It is engrained in our flesh to judge. Worse, we tend to believe that we are walking in wisdom by the way we judge people and things, when in reality we are doing nothing but creating a world of pain and conflict. We create the condemnation we wish to expel! The truth is that the majority of the emotional suffering you now experience is an outcome of your current set of judgments. Nothing outside of you has the power to hurt
you until you place a judgment on it and this includes others as well as disease, thoughts and emotions. It is the judgment, the value we assess on anything and everything that brings us pain, depression and anxiety. Judgment is the attachment of significance. Judgment is NOT an observation of what was experienced; judgment is our placement of why. If someone fails to repay a debt owed to me, the fact that a contract was breached is an observation; my thoughts of them ‘cheating me’, ‘being irresponsible’, ‘being crooked’, ‘not caring’ are judgments on my response to the observation of the facts as to why the deed was done. Making an assumption of motive is judgment and it now has power in my life based on the judgment I made.

The same is true when we judge any situation as ‘good’ or ‘bad’. A diagnosis of cancer should inspire us to seek wisdom but we tend to judge. “What have I done to cause this? Why me? Is God angry at me? Is this a punishment?” These and other thoughts stem out of our need to cast blame; they are judgments as to why instead of an observation of a fact – “I have cancer, now what am I going to do about it?” Just because it’s human nature to judge and blame does not mean that doing so is in our best interest. It may seem that we throw the responsibility on someone else and even give us temporary reprieve, but ultimately we are the ones that carry the burden. Oh the pain that we would eliminate if we would just observe and stop judging!

I place an interesting question on my patient intake form that asks a simply question: Do you blame anyone for your current problem? Most people read into their possible answer and leave it blank but the truth is that all of us do, more times than we care to admit, blame someone for our current conditions. Whether we blame others, God, or ourselves, blame is a judgment rather than an observation. We can be in real physical pain and torment, suffer indescribable emotional anxiety and depression, or be dying of disease all based upon what we judge about present or past situations. Furthermore, difficult situations are always worsened when we judge the circumstance.

It may be important to define the difference between making right judgments (observations) and judging. Biblically commanded judgments do not define a reason why. They are observations that may change our subsequent action but leave the need to answer ‘why’ to God. This is especially difficult for people like me who have created a career of
investigating cause. It is my job to find out why a person is sick and then administer the correct medicine. While this is appropriate in healthcare, it is pathological in life’s circumstances and relationships. It may be my Biblical responsibility to observe the doctrinal integrity of whom I choose to listen to, but it is not my job to pass judgment on someone for their current beliefs.

An example was observed recently. A patient of mine spoke to me about a church that they were attending and the legalistic manipulation that was taking place. Both she and her husband wanted to leave but were confronted by the pastor who told them that their real problem was a ‘spirit of rebellion against authority’. He told them that they needed to ‘submit to the leaders of the church and obey the church doctrines’. One aspect that stood out in our discussion was the pastor’s demands that everyone spend at least one hour each day in their ‘prayer closet’ and witness to one person each day. He insisted that this was Biblical as it was fulfilling the Great Commission in Matthew 28. The couple, being fairly new to the faith was confused, asking me if what he said was correct. The truth of the New Covenant is the freedom that exists in Christ. While it is true that Jesus commanded us to share His word with the world and it cannot be argued that personal communion with God is essential for our peace and growth, to manipulate people into following an agenda is flat out denial of the cross!

When we received the ability to judge good and evil we lost trust in God’s goodness. When, in our innocence, we simply knew God as good and all He created was something for our benefit, eating from the tree of the knowledge of good and evil brought us to question God. We no longer believe God is for our good. God is ‘judging us’ and He finds us guilty so we judge Him and find Him untrustworthy. Ask yourself if you don’t think things like this when times are tough: “I’m getting what I deserve; it’s my fault, I should of, could of, ought to…” Test yourself on this; do you even have an inkling of belief that God displays His wrath through tornados, hurricanes, disasters, and the like? How many of us either thought or verbalized that the 911 disaster was God punishing America for their sins?

Here’s news: God already poured out His wrath for sin on His Son two thousand years ago! Jesus became sin and took God’s entire wrath, suffering the punishment once for all. Once you believed, you’ve been, “freed from sin, and you’ve become slaves of righteousness.” (Romans 6:18) Believing and confessing is acknowledgment of your changed mind
(repentance) about God. Those that are IN Christ are freed from the wrath of God (Romans 5:9); we are rescued through His blood (1 Thessalonians 1:10), destined for salvation (1 Thessalonians 5:9). Christ, “died for our sins,” (1 Corinthians 15:3) and “He died for all, so that they who live might no longer live for themselves, but for Him who died and rose again on their behalf.” (1 Corinthians 5:15)

Judgment comes through the Law and brings death. Let it come. Allow it to slay you that you may be, “released from the Law, having died to that by which we were bound, so that we serve in newness of the Spirit and not in oldness of the letter.” (Romans 7:6) Let us read and repeat often, “What then shall we say to these things? If God is for us, who is against us? 32 He who did not spare His own Son, but delivered Him over for us all, how will He not also with Him freely give us all things? 33 Who will bring a charge against God’s elect? God is the one who justifies; 34 who is the one who condemns? Christ Jesus is He who died, yes, rather who was raised, who is at the right hand of God, who also intercedes for us. 35 Who will separate us from the love of Christ? Will tribulation, or distress, or persecution, or famine, or nakedness, or peril, or sword?” (Romans 8:31-34)

I need to read that again, “If God is for us, who is against us?” I'll be honest, it is usually ME. My condemnation of myself and others resuscitates the Law. What was meant to kill me, revealing the need for a savior and drive me to the cross, has been allowed to live through my judgments. This should not be! But, to accept that God loves me so much that He sent His one and only Son to exchange His life for mine and die the death that I deserved is ludicrous to my human mind. This is why the Apostle John writes, “See how great a love the Father has bestowed on us, that we would be called children of God.” (1 John 3:1) This Greek phrase interpreted, “how great a love” should actually be read, “how alien”, or “as if from another planet” as it is altogether alien from what I know or could find in this world.

Don’t forget who you are. You are the child of the Most High God, purchased by an infinitely great sacrifice and adopted as sons and daughters of the King. Don’t turn back to judgment of the Law like a dog feeding off its own vomit (2 Peter 2:22). Every time we judge we forsake the righteousness of Christ as foolish, bewitched (Galatians 3:1) souls attempting to perfect grace in the flesh. It can’t be done. Jesus did it ALL.
Enter into the rest that was fully won 2000 years ago to receive the power to live abundantly now.

3. **Living under Condemnation = the expectation of judgment.**
   Condemnation is a heart-sense of bad things to come... impending doom

If there is a secret to success in life, it is an open secret, available for all to know. Perhaps the most important ingredient to success is how one answers one specific question. The answer to this question governs one’s attitude in both the hills and valleys of life. It sets one’s perception, guides them in decisions and directs their paths. I’ve seen both Christians and non-Christians utilize their answer to both lead them to unspeakable joy and keep others in unbreakable despair. Our answer to this one question determines the boundaries which we live by, how big we can be and all that we can accomplish. It isn’t ‘spiritual’ per-say and doesn’t require a belief in Jesus. One’s answer therefore, does not determine eternal destiny so this question may be qualified as the second most important question one must answer themselves, the first and most important question one must confront is, “What am I going to do about Jesus Christ?” However, our answer to the question below helps form the answer we will have about what to think about Jesus:

> “Do you believe that God LIKES you, is the giver of only GOOD to you and desires only your GOOD?”

The religious person believes they’ve dealt with the most important question in life, given their heart to Christ, and yet lives under the belief that God, though He may LOVE them (since He’s supposed to do that seeing that He’s God and all), He doesn’t actually LIKE them. Either consciously or unconsciously, they believe that God is always mad at them. They strive to accommodate God, His demands and qualifications. To the religious person, God is love, but He’s angry at me. He expects more from me and meeting His needs to receive an eternal “at-a-boy” is exhausting. How can this be?

Religion asks, “Does He want my ‘good’? Well sure,” they think, “but not too good.” If good things come to them they are usually balanced with a
humbling event because, after all, ‘God doesn’t want us to get conceited’. The religious person believes that they deserve punishment and abasement and God is usually upset with them. They read of God’s love and that He calls believers “His child” but then qualify His love based on their performance. God may love them because He has to; it’s part of His job of being God. But really, God doesn’t LIKE them. To read this in the first person is important because I think that most of us find ourselves in the “religious person” category a great deal of time.

Let’s contrast this life view with one who believes that God not only loves them but LIKES them. God only wants my good and even when difficult times come, they are but stepping stones, blessings to discover, or hurdles to strengthen me. There are no good or bad things in my life, it is all joy, and everything is a gift. God is my father but He is a good father; He invites me to snuggle up on His lap and tell me He loves me and that I am His favorite little guy in the whole wide world. He whispers sweet things in my ear and tickles my belly. He tells me of things He has in store for me and how He’s planned this day as a special day with all sorts of fun challenges and treats.

“There is therefore now no condemnation
for those who are in Christ Jesus.”
-Romans 8:1

Words on which to Meditate

“Above all the grace and the gifts that Christ gives
to his beloved is that of overcoming self.” – Francis of Assisi

I’m sure Francis of Assisi was speaking of the ‘old self’ or the ‘flesh’ that is so difficult to overcome, that which is engrained in judgments and condemnations from Eden’s inheritance. Maybe the thoughts, desires, lusts, and greed of my flesh are so difficult to put to death because we don’t know what God says about the new, regenerate “I” that we’ve become and are in the process of becoming as truly saved believers. “Who am I,” is an
appropriate question. A better question may be, who does God say that I am? Read the following to yourself aloud:

“I am complete in Him Who is the Head of all principality and power (Colossians 2:10).” I am complete, no addition needed, no mixture with rules or religion, no sprinkle of philosophy or pinch of law. IN Jesus Christ, “I am alive,” (Ephesians 2:5), “I am free from the law of sin and death” (Romans 8:2). Though my old self may reminisce in stray imagination I must, “put off the old man and put on the new man, which is renewed in the knowledge after the image of Him Who created me.” (Colossians 3:9-10)

When the enemy whispers lies to me that in my past I once believed I remind him that, “I have the Greater One living in me; greater is He Who is in me than he who is in the world (1 John 4:4).” The world may oppress me but, “I can quench all the fiery darts of the wicked one with my shield of faith (Ephesians 6:16),” and when it tells me it has victory, I know that, “I am more than a conqueror through Him Who loves me (Romans 8:37).”

Though I sin, I repent and know that, “I am forgiven of all my sins and washed in the Blood (Ephesians 1:7).” God sees Jesus when He looks at me for, “I have received the gift of righteousness and reign as a king in life by Jesus Christ (Romans 5:17).” For I know that, “I am holy and without blame before Him in love (Ephesians 1:4; 1 Peter 1:16),” and, “I am God’s child for I am born again of the incorruptible seed of the Word of God, which lives and abides forever (1 Peter 1:23).” To meditate on the fact that HE chose me, even before He created the foundations of the earth is mind-blowing. He has given me, “the mind of Christ (1 Corinthians 2:16; Philippians 2:5),” and, “the peace of God that passes all understanding (Philippians 4:7).” Just say this aloud, “I am God’s workmanship, created in Christ unto good works (Ephesians 2:10),” for, “I am a new creature in Christ (2 Corinthians 5:17), I am a spirit being made alive to God (Romans 6:11; 1 Thessalonians 5:23), I am a believer, and the light of the Gospel shines in my mind (2 Corinthians 4:4), I am a doer of the Word and blessed in my actions (James 1:22,25).”

Think about it! God says that, “I am a joint-heir with Christ (Romans 8:17), I am more than a conqueror through Him Who loves me (Romans 8:37), I am far from oppression, and fear does not come near me (Isaiah 54:14), I am born of God, and the evil one does not touch me (1 John 5:18).”
The more ignorant I am of what God is telling me regarding WHO I AM when I am IN Christ, the more difficult it is to overcome the world. I must recite these Biblical affirmations over and over, take time to dwell on these truths and cast them as blessing over my household. For, “I have received the spirit of wisdom and revelation in the knowledge of Jesus, the eyes of my understanding being enlightened (Ephesians 1:17-18).”

Never must I speak negatively, cursing even in jest. God was not glib when He said that, “I have received the power of the Holy Spirit to lay hands on the sick and see them recover, to cast out demons, to speak with new tongues. I have power over all the power of the enemy, and nothing shall by any means harm me (Mark 16:17-18; Luke 10:17-19).” When I believe and obey His truth that I am truly a new creature, “I have given, and it is given to me; good measure, pressed down, shaken together, and running over, men give into my bosom (Luke 6:38). I have no lack for my God supplies all of my need according to His riches in glory by Christ Jesus (Philippians 4:19).”

No matter the difficulties I face, I know that, “I am an overcomer by the blood of the Lamb and the word of my testimony (Revelation 12:11), I am a partaker of His divine nature (2 Peter 1:3-4), I can do all things through Christ Jesus (Philippians 4:13), and I am an ambassador for Christ (2 Corinthians 5:20).”

In myself, I have no power, I declare myself dead, slain by the law and now resurrected by the blood, “I show forth the praises of God Who has called me out of darkness into His marvelous light (1 Peter 2:9). I am the temple of the Holy Spirit; I am not my own (1 Corinthians 6:19). I am the head and not the tail; I am above only and not beneath (Deuteronomy 28:13). I am His elect, full of mercy, kindness, humility, and longsuffering (Romans 8:33; Colossians 3:12). I am delivered from the power of darkness and translated into God’s kingdom (Colossians 1:13).”

“I am redeemed from the curse of sin, sickness, and poverty (Deuteronomy 28:15-68; Galatians 3:13), firmly rooted, built up, established in my faith and overflowing with gratitude (Colossians 2:7). I speak boldly because, “I am called of God to be the voice of His praise (Psalm 66:8; 2 Timothy 1:9).”

I will NEVER give up and never give in for I know that, “I am healed by the stripes of Jesus (Isaiah 53:5; 1 Peter 2:24), I am raised up with Christ and
seated in heavenly places (Ephesians 2:6; Colossians 2:12), I am greatly loved by God (Romans 1:7; Ephesians 2:4; Colossians 3:12; 1 Thessalonians 1:4), and I am strengthened with all might according to His glorious power (Colossians 1:11).”

Victory over my flesh, this world and the enemy is secure and complete when, “I am submitted to God, and the devil flees from me because I resist him in the Name of Jesus (James 4:7). For God has not given us a spirit of fear; but of power, love, and a sound mind (2 Timothy 1:7). For this reason, I press on toward the goal to win the prize to which God in Christ Jesus is calling us upward (Philippians 3:14).”

Dear Lord, may I always keep firmly at the forefront of my mind the unshakeable, unchangeable fact that, “It is not I who live, but Christ lives in me (Galatians 2:20).”

Daily Practice

Biblical Truths to “Practice Believing”. We are called to “put off the old self” and “put on Christ” (Ephesians 4:22-23) which means to literally remove false beliefs we have of ourselves, others and God and be brainwashed in the truth of who God says we are and who He says that He is. Below are some verses to read daily. Meditate on them. Let the truth hit you hard for you are a prized possession of the Most High King.

Nothing you could ever do or have ever done could make God love you any more or any less than He already does. He chose you before the foundations of the earth were set to be His son/daughter and you are perfect in His sight. Crawl up on His lap and recite these verses to yourself constantly. Imagine Him stroking your hair and whispering, “I love you my precious child,” in your ear.

Who I Am In Christ AFFIRMATIONS:

I AM GOD’S…

· Possession! I am His and that can never change. - Genesis 17:8/ 1Cor 6:20
· Child. Nothing I ever do or don’t do will change this fact! - John 1:12

· Workmanship. He molds and shapes me to the image of His Son! - Ephesians 2:10

· Friend. HE chooses to call me ‘friend’. - James 2:23

· Temple. HE dwells inside me through His Holy Spirit. - 1 Corinthians 3:16/ 6:16

· Vessel. Though cracked and broken, the contents in me are precious. - 2 Timothy 2:2

· Co-laborer. I work not to please God but to know Him more deeply and to learn how to REST in Him - 1 Timothy 5:18

· Witness. As I simply allow His Spirit to shine through me, not by my works but by yielding to Him. - Acts 1:8

· Soldier. I submit to His authority. - 2 Timothy 2:3

· Ambassador. I am a co-bearer of God on earth. - 2 Corinthians 5:20

· Building. I am His personal creation that He planned before He even created the earth. - 1 Corinthians 3:9

· Husbandry. (His valued possession) - 1 Corinthians 3:9

· Minister/instrument. Acts 26:16 / 1 Timothy 4:6

· Chosen. He picked me because He LIKES me. - Ephesians 1:4

· Beloved. I intimately cuddle with my Daddy. - Romans 1:7/ 2 Thessalonians 2:13

· Precious jewel. He tells me this every day. - Malachi 3:17

· Heritage. I am His namesake whom He is so proud of. - 1 Peter 5:3

I HAVE BEEN...

· Redeemed by the blood. It is NOT by my good deeds that makes Him love me more nor can the bad things I’ve done make Him love me any less. It is impossible for Him to do either because He MADE me His child because of what HE already did through His Son. It’s a ‘done deal’!!! - Revelation 5:9

· Set free from sin /condemnation. Because of Him I expect ONLY GOOD in my life today. I no longer condemn myself or am condemned by others. Impending doom has ALL disappeared. Only goodness and mercy awaits me every morning and they are new each day!!! - Romans 8:1-2

· Set free from Satan’s control. The ONLY power over me is my own choices now and I choose FREEDOM in Christ with ALL the rewards of EVERY promise! - Colossians 1:13
· Chosen before foundation of world. I am hand-picked to be on the winning team. - Ephesians 1:4

· Predestined to be like Jesus. God sees ONLY Jesus when He looks at me. I am white as snow and pure in His eyes. He smiles at me. - Ephesians 1:11

· Forgiven of all my trespasses. What Jesus did 2000 years ago was done once and for all. He paid the price for me. I simply believe and receive the free gift. Thanks you! - Colossians 2:13

· Washed in the blood of the Lamb. I am cleansed. Let me learn to rest in Him and be filled with His Spirit so I may reveal the fruits to everyone I meet. - Revelation 1:5

· Given a sound mind. I claim this for peace in difficult times. - 2 Timothy 1:7

· Given the Holy Spirit. I quiet my mind and emotions to simply find comfort in the fact that God placed His Spirit inside of me. - 2 Corinthians 1:22

· Adopted into God’s family. Natural babies enter into a family and parents don’t get to ‘send them back’ but adopted children were chosen, knowing the faults and weaknesses. God picked me while I was still a sinner, dirty and an enemy of His. He STILL picked me because His love for me exceeded my sins against Him. - Romans 8:15

· Justified freely by his grace. I have been made just, forgiven, purified, and given mercy because that’s just who God IS. It had nothing inherently to do with me, it was a free gift. My right-standing before God is all because of what HE has done and needs only my acceptance. - Romans 3:24

· Given all things pertaining to life. Religion strives after God; God says, “Stop, I’m already here and have already made a way.” - 2 Peter 1:3

· Given great and precious promises. ALL the promises of God are YES in Jesus for me! - 2 Peter 1:4

· Given ministry of reconciliation. I can only give what I have to give. To the degree that I receive God’s mercies (new and available every day for me) is the proportion that I can give them to others. - 2 Corinthians 1:22

· Authority over the power of enemy. There is NO more fear of ANY enemy!!! - Luke 10:19

· Access to God. I now freely come before His throne knowing all I ask in His name is already mine in Christ Jesus. - Ephesians 3:12

· Been given wisdom. This is what we are to FIRST ask for in every seemingly troubled time. He freely gives me wisdom and I NEVER doubt for I am a single-minded man and stable in all my ways! - Ephesians 1:8, James

I AM...
Complete in him. There is nothing I add but my surrender to Him. - Colossians 2:10

Free forever from sin’s power. Though I ‘mess-up’ and choose wrong paths often, forgiveness has already been granted and His mercy is new again today. - Romans 6:14

Sanctified. He daily changes me, teaches me, and reminds me that He is good and wants only my best. - 1 Corinthians 6:11

For the Master’s use. He plans my ways and ordains my day. I quietly listen to His leading and learn to obey His quiet whispers. - 2 Timothy 2:21

Loved eternally. Nothing could ever separate me from His love! - 1 Peter 1:5

Eternally kept in the palm of his hand. - John 10:29

Kept from falling. He always provides safe passage through any storm. - Jude 1:24

Kept by the power of God. His strength is always at my disposal. - 1 Peter 1:5

Not condemned. Today brings more blessings. Though often disguised as struggles, God turns all things, even problems, to good for me. - Romans 8:1-2

One with the Lord. I am bound, chained, sealed and tattooed with His personal guarantee! - 1 Corinthians 6:17

On my way to heaven. I am always looking at everything with an eternal perspective. - John 14:6

Quickened by his mighty power. My ears are tuned to His calling. - Ephesians 2:1

Seated in heavenly places. Even when my day seems so hard, I am keep focusing on facts. Facts like: the spiritual realm is more real than the physical; the victory over this situation has already been established; and healing is already mine in my spirit – all comfort me. - Ephesians 1:3

The head and not the tail. God has set me in high places – not because of my holiness but because of His. - Deuteronomy 28:13

Light in the darkness. I lay down my rights, my will, and my flesh to let the Spirit shine through me. His light is the brightest in the darkest of times. - Matthew 5:14

Candle in a dark place. Candles have the unique ability to light other’s candles. This I choose to do – be a light to others! - Matthew 5:15

City set on a hill. His love can no longer be hidden in me; I make it evident to all. I have perfect peace where there is no peace, love where it is not deserved, patience where it is not earned, joy through sadness, kindness to the grumpy, and show God’s goodness in perfect self-control. - Matthew 5:14, Galatians
· Salt of the earth. Salt preserves; it protects and keeps fresh. I am the salt to all I meet. - Matthew 5:13

· His sheep. Sheep are valuable commodities. I am the sign of God’s riches. - Psalms 23 / Psalms 100:3/ John 10:14

· A citizen of heaven. I have the rights of full citizenship in Heaven with all its rights and rewards. - 1 Peter 2:11

· Hidden with Christ in God. The ease of life is found when I am fully yoked with Him. He then carries my burdens. - Psalms 32:7

· Protected from the evil one. No troubles will again overtake me; victory is always secure. - 1 John 5:18

· Kept by the power of God. It is HIS might and strength in which I depend. I hold His hand and He gives me victory. - 1 Peter 1:5

· Secure in Christ. There is surety in Him; I am safe. He will never let me go! - John 10:28-29

· Set on a Rock. My foundation is solid; I can stand tall; I am immovable and unshakable. - Psalms 40:2

· More-than-a-conqueror. I’m not just an overcomer, I’m victorious. All that I put my hand to is successful. - Romans 8:37

· Born again. I am made completely new. This was not just an event in my past but a present reality. His mercies are fresh for the taking every day. - 1 Peter 1:23

· A victor. I share the spoils of victory – every joy, abundance, and supply that I’ll ever need and always given more than enough! - 1 John 5:4

· Healed by his strips. Jesus died for my healing; it’s a done-deal. Though we all will die, my spirit is completely healed and I choose to walk as and live like a healed, healthy and whole person right now! - Isaiah 53:6

· Covered by blood of Jesus. What God did needs no addition and cannot be improved upon. Every area of my life, my deeds and thoughts are covered by the redemptive power of Christ. - Revelation 12:11, 1 Peter 1:19

· Sheltered under his wing. He is my protector; He stands in front of me in a battle and carries me when I tire. - Psalms 91:4

· Hidden in secret place of the Almighty. I now labor only to enter into His rest. - Psalms 91:1

I HAVE...

· Access to the Father. Daily I come before Him to receive His grace. - Romans 5:2
· A home in heaven waiting for me. I will be completely perfected. - John 14:1-2

· All things in Christ. All His promises are 'yes'. - 2 Corinthians 5:17

· A living hope. God’s hope never fails and never disappoints. - 1 Peter 1:3

· An anchor to my soul. His anchor holds me back from running off into trouble, trying to please Him doing some religious thing, and falling into my own foolishness. - Hebrews 6:19

· A hope that is sure and steadfast. He never fails! - Hebrews 6:19

· Authority to tread on serpents. Though I go through seasons of trouble - Nothing in this world will have victory over me. - Luke 10:19

· Power to witness. My life will be my greatest witness. - Acts 1:8

· The tongue of the learned. I rely on and freely receive God’s wisdom. - Isaiah 50:4

· The mind of Christ. I am daily, more-greatly perfected. 1 Corinthians 2:16

· Peace with God. He LIKES me, is NEVER mad at me, always takes joy in me and even when I sin He gently beckons me home. - Romans 5:1

· Faith as a grain of mustard seed is more than enough to trust God in everything! - Luke 17:6

I CAN...

· Do all things through Christ. He IS my strength. - Philippians 4:13

· Find mercy and grace to help in all situations. - Hebrews 4:16

· Come boldly to the throne of grace. I can bring every request for He is MY daddy! - Hebrews 4:16

· Quench all the fiery darts of every day’s problems. - Ephesians 6:16

· Declare liberty to captives. I am FREE from the Law that did its work in me. It drove me to the undeniable need for a merciful Savior. - Isaiah 61:1

· Pray always and everywhere. Prayer is talking to God and I quiet my mind to listen to Him. Like all His sheep, I hear His voice. - Luke 21:36

I CANNOT...

· Be separated from God’s love. It is impossible for Him to love me either more or less; His love never fails! - Romans 8:35-39
· Perish or be lost. He is my everlasting fortress. I am adopted into His family and am now a full child with all the inheritances that belong to Christ. - John 10:28, John 3:16

· Be taken out of my Father’s hand. Nothing, in this world or the next, can pluck me from my Father’s hand. - John 10:29

· Be charged or accused. There is NO more condemnation for me. When I feel doubt or impending doom I now say, “This no longer serves me or has power over me, for there is now therefore NO condemnation for those who are in Christ!” - Romans 8:33, 1 Corinthians 11:32
Other Sources to explore:

- Fields, R. D. The Other Brain (Simon & Schuster, 2009).
- The Role of the ω-3 Fatty Acid DHA in the Human Life Cycle, Sarah J. Carlson, MD, MSc, Erica M. Fallon, MD, Brian T. Kalish, Kathleen M. Gura, Mark Puder, MD, JPEN J Parenter Enteral Nutr January 2013 vol. 37 no. 1 15-22
- Chronic prenatal exposure to the 900 megahertz electromagnetic field induces pyramidal cell loss in the hippocampus of newborn rats, O Bas, Department of Anatomy, Rize University School of Medicine, Rize, Turkey
• Neuropsychological development of behavior attributed to frontal lobe functioning in children, Developmental Neuropsychology, Volume 1, Issue 4, 1985, Passler
• Neuroscience: Solving the brain 17 July 2013
• The benefits of brain mapping 17 July 2013
• Whole human brain mapped in 3D 20 June 2013
• Behind the scenes of a brain-mapping moon shot 06 March 2013
• Was Hitler right to invade Russia in 1941? by Andrew Wright
• Limbic abnormalities in affective processing by criminal psychopaths as revealed by functional magnetic resonance imaging, Biological Psychiatry, Volume 50, Issue 9, 1 November 2001, Pages 677–684
• Abnormalities in emotion processing within cortical and subcortical regions in criminal psychopaths: evidence from a functional magnetic resonance imaging study using pictures with emotional content, Biological Psychiatry, Volume 54, Issue 2, 15 July 2003, Pages 152–162
• E.g. Milford Wolpoff, also at the University of Michigan.
• Neurofeedback helps relieve chemo brain symptoms, Cleveland researcher finds, Angela Townsend, The Plain Dealer, April 22, 2013
• Neuroplasticity helps relieve brain symptoms, Cleveland researcher finds, Angela Townsend, The Plain Dealer, April 22, 2013
• Neuroplasticity: Your Brain’s Amazing Ability to Form New Habits, Mike Torres http://www.refocuser.com/2009/05/neuroplasticity-your-brains-amazing-ability-to-form-new-habits/#sthash.eAKpD70N.dpuf
• The Mind and the Brain: Neuroplasticity and the Power of Mental Force Paperback, by Jeffrey M. Schwartz  (Author) , Sharon Begley
• Gluten Sensitivity and the Impact on the Brain, Dr. David Perlmutter, MD
• Consequences of Repeated Blood-Brain Barrier Disruption in Football Players, Nicola Marchi equal contributor, Jeffrey J. Bazarian equal contributor, Vikram
Further Research:

*Doing Neurofeedback, A Condensed and Comprehensive Guide to the Practice of NFB*
Dr. Richard Soutar, PhD
Published by the author, updated 2007

*Getting Started with Neurofeedback*
(an introduction to theory and practice – useful reference for clinical approaches) John N. Demos
Norton (2005)

*Awakening the Mind – A Guide to Mastering the Power of Your Brain Waves*
(hands-on tips for self-mastery; useful meditations and imagery for use with patients) Anna Wise
Tarcher-Penguin (2002)

*A Symphony in the Brain – The Evolution of The New Brain Wave Biofeedback* (must have to understand history of the development of NFB; part of the story) Jim Robbins

*A Guide to Neurofeedback*
(great reference handbook-excellent neuroanatomy diagrams, clinical applications) Thompson & Thompson
Published by The Association for Applied Psychophysiology and Biofeedback (2003)

*Handbook of Neurofeedback – Dynamics and Clinical Applications*
(theoretical, but excellent resource with cited references) James R. Evans, PhD

*Change Your Brain, Change Your Life*
The Breakthrough Program for Conquering Anxiety, Depression, Obsessiveness, Anger and Impulsiveness
Daniel G. Amen, MD

*Power Up Your Brain*
(Dr. Perlmutter is a solid reference for nutritional concerns; discusses the spiritual side of brain fitness)
The NeuroScience of Enlightenment
Dr. David Perlmutter & Alberto Villoldo
Hay House (2011)
Remarks
Regardless of what you choose about healthcare, I pray that you make wise, rational decisions based on facts (though often hidden) and not fear. You need to take responsibility and not hand it over to any practitioner, conventional or alternative. Get advice from many, weigh it all against their biases, and pray for peace about your decisions.
Kevin Conners, Pastoral Medical Association, Fellowship in Integrative Cancer Therapy and Fellowship in Anti-Aging, Regenerative and Functional Medicine, both through the American Academy of Anti-Aging Medicine.

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