CIRS

Chronic Inflammatory Response Syndrome

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functional medicine

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CIRS - Chronic Inflammatory Response Syndrome

CIRS, or Chronic Inflammatory Response Syndrome, is a progressive, multi-symptom, multi-system illness that results from exposure to a biotoxin in genetically susceptible individuals.

I have to be honest. I didn't think I would ever write a post on this topic let alone an entire page. When I was in fellowship studying '*functional medicine*' *(let's just call it 'actual medicine')*, I learned about patients with chronic inflammation who were super sick for months or years - nothing was right, everything was wrong, and no one had a good answer to what was causing their symptoms let alone a reliable solution to fix it. We didn't call it CIRS back then. Well, some people did, but I apparently missed the memo. We just called it "*Lyme*". Or "*Mold*". Lyme and mold was usually in there somewhere. These *"Lymey/Moldy"* people were incredibly complicated patients. How can a person possibly have 50 different symptoms involving every single organ system in the body but still have a totally normal physical exam and completely boring labs? How can that same person see a dozen different specialists at MCW Froedtert, Mayo, Johns Hopkins - all of whom concluded they were "*fine*" - and yet here they were. Sitting right in front of me, insistent that they were sick AF, and none of those guys knew what they were talking about?

"I heard you would be able to fix me, Doc". Umm - you did?

Ten years ago, these patients scared me. It was like opening Pandora's box. God only knew what you would find. There was obviously something wrong. There had to be. But what? They would often identify as '*having chronic Lyme'* or being '*sensitive to mold'*. But when we tested them, the Lyme people also had mold and the mold people invariably had Lyme. Bahh. What could possibly tie together this insane set of symptoms these people presented with? It could be anything. Run through a checklist of 50 potential symptoms? They checked all 50 boxes. Usually more if you counted the write-ins. Good grief. If there was fame and fortune in being a professional patient, then, well, maybe I was being had. But there wasn't. And that scared me even more.

The exhausted, always achy, can't-think-worth-a-shit patient.

I had a pretty good handle on metabolic medicine back then. I knew how to approach the tired, inflamed, foggy brained patient. And many of them got better – some of them got a lot better. But many of them didn't. Others would get better, but then get worse again. I knew I was missing something.

And then COVID happened. Give me a minute to quick sidestep over to this pivotal and quite possibly most monumental healthcare disaster of all time. It will tie into all of this in a sec...

Early 2020: Tommy and I were returning from an out of country vacation. Lots of sun, little to no TV. The only channel we had in our room yammered on and on the entire week about this really bad new respiratory virus in China that was starting to show up in the US. Never anything good on TV, I told myself. This is why I don't watch the news. We had three total minutes of closed-captioned World News time while in and out of our room that entire week. Not enough fear porn to open my laptop.

Sitting in the airport on our way back home was a different story. Travel seemed eerily quiet. Customs was a little too easy to get through. Plenty of open seats at our airport bar – every airport bar for that matter. Waiting for our flight we were watching more of the same on this lethal new virus. Noticing we were two of what appeared to be a total of a dozen people at the largest airport in the country Huh. This had me a little more interested in the news.

Wait a minute, what is going on here? A new pathogen? Where did it come from?

*When our plane landed back home, everyone's phone lit up with a collective 'ding' in the cabin – the President had grounded all international flights. Well...*nervous laugh*...nice timing. Crazy – we were only gone for seven days.*

In seven days, a whisper had become a forest fire. In seven days, the cause of that forest fire had been identified, researched, and discussed in large forums by the world's most highest ranking scientists. In seven days, the origin of this lethal new illness had been signed, stamped, and published – in the Lancet. During my seven days out of the office the whole world had changed, new rules were set to be put in place and our leading health officials had come together in a unified voice to inform us unequivocally as to the origin of this global threat. It was a perfectly sensical deduction:

Hibernating bats awoke to meet a normally-living-600-miles-away creature called a 'pangolin' roaming around in a wet market on the other side of the planet, had relations, and the rest is world history – got it? Hey, I bought it. I made a whole video about it.

Even if you didn't watch the news, you couldn't miss him. He was everywhere and I had lots of questions. Kindergarten-style hand raise from me... I'm sorry Tony, did you say there were absolutely NO early outpatient treatment options for sick patients with a respiratory infection? No vitamin C? No chicken soup? We're supposed to tell them just to wait until they can't breathe any longer and THEN go to the hospital?

Yeah, no. See, I can read. We've got these things over here that we've used on coronaviruses forever...

Reading, reading, reading - literature pouring out of strangely every single solitary country on successful ways to treat this beast. Every country except ours. Studies went up, then mysteriously came down. Someone was 'DE-platformed'? What even was that? More than 4 years and hundreds of peer reviewed publications showing the immune system benefits of simple over the counter interventions like vitamin D, diet, exercise, sleep, etc. later, and we still don't have a recommendation from our 3-letter agencies on what general measures to take to protect us from an infectious disease?

Disbelief finally met realization. I so didn't want to believe it - never thought it was even a possibility, but it didn't take long for me to understand what was going on. "*Science*" had officially been co-opted, the American public were gaslit, the media clearly biased, and ivermectin was for horses only. Stop it, y'all.

Those were dark times. I wasn't sure we would make it through 2020. Misinformation, disinformation...Malinformation? Could anyone – just say what they thought anymore? After almost losing my medical license for being only a handful of physicians in our state who would even touch COVID patients outside of the hospital setting, I was just grateful to have survived year one. I had my reservations on the prevention strategy rolled out in 2021, but hey, you do you. It's a free country. Right?

In 2021, the smoke was starting to clear, things in my world were beginning to return to some semblance of normal. But then it happened. One by one they started calling. Not patients with COVID this time – no no. It was the *'Lymey/Moldy'* patients from days gone by – I was certain of it. They were back. And they were everywhere. Profound fatigue. Brain fog. Pain. Shortness of breath. Hives. Heart palpitations. Lightheadedness. Numbness and tingling. I had seen these folks before.

But these patients had not just moved into a moldy house. And it was still too cold outside for ticks in WI. What the hell was going on? It took us a hot minute to figure it out. We thought we had a new syndrome. We even gave it a new name.

Long COVID.

But gosh, did this song and dance sound familiar...was it?

Well, it's 2024 now. The past few years have forced me back down the research hole. It's where I always end up when I have no idea what's going on. A safe space now housed on the dark web thanks to the silencing of dissenting voices. It was there that I was able to put it together. Those 'Lymey/Moldy' patients? The patients with 'Long COVID'? They all had the same symptoms. The same labs. The same exam findings. They had the same immune system dysregulation.

It was CIRS.

And there was that 20% statistic again. What percent of people living in water damaged buildings went on to develop sickness from the water damaged building? 20%. What percentage of people who get a tick-borne infection went on to develop chronic Lyme? 20%. What percentage of people who got COVID went on to develop Long COVID? 20%.

Just like mold and Lyme, spike protein was a biotoxin. That was it – it had to be. Similar configuration, same negative charge. The triggers were different, but the disease process was the same. It was time to formally embrace the boogeyman that was CIRS. And so, I did.

By hook or by crook or by FOIA request, we will learn about this latest biotoxin and more about the others. More importantly, if the long-lasting effects of a novel virus just so happen to mirror a disease process that has already been identified – and is treatable – then perhaps we can see this as having a leg up on managing it. I think there are subtle differences for sure. I don't think COVID has shared all of its secrets with us yet. But I am hopeful that the ground work for managing what will assuredly be massive fall out from exposure to Spike protein toxicity has already been laid by the years of effort put into doing the same for CIRS. Maybe, just maybe, correcting the immune system dysfunction described here, will illuminate the pathway forward for all those many patients suffering from biotoxin illness.

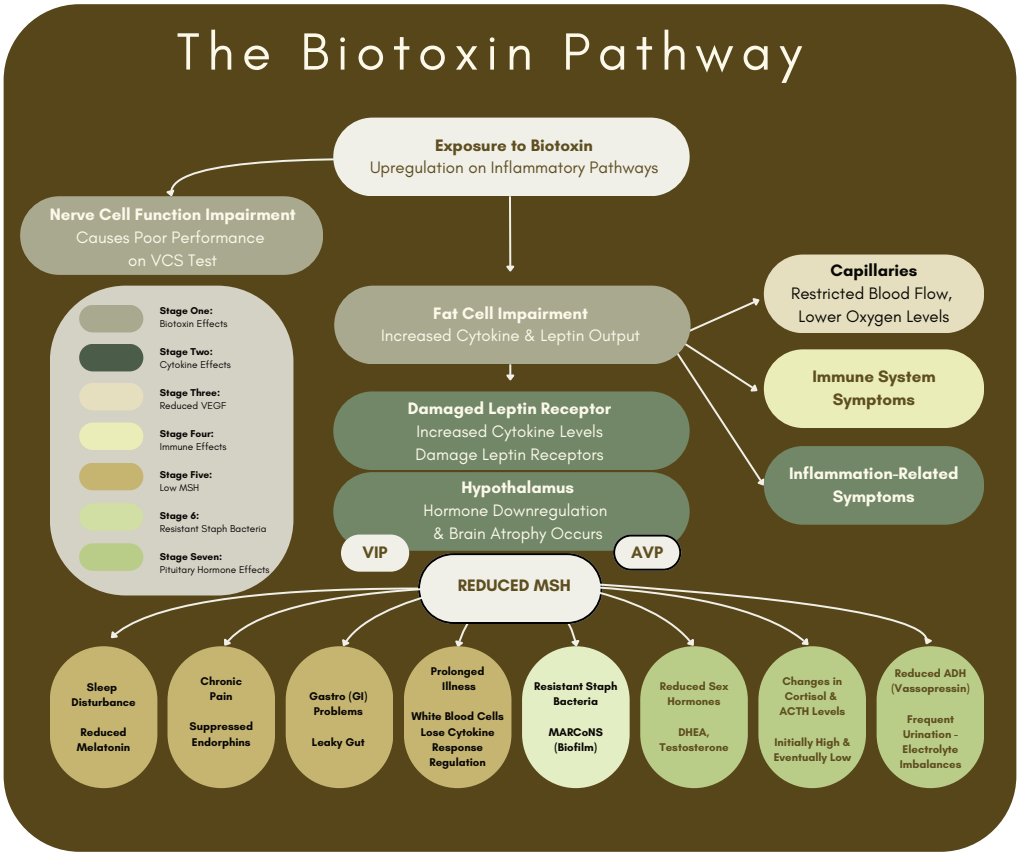
What is CIRS?

Think of CIRS as the "nothing is right, everything is wrong, and no doctor can figure out what's wrong with me" illness. I think there's probably a direct correlation between the number of bizzaro symptoms a person has, the number of physicians they've seen in the past 10 years, and the likelihood of them having CIRS. Seriously. We can do the statistical regression later.

CIRS *(Chronic Inflammatory Response Syndrome)* is a multi-system, multi-symptom illness involving overexpression and dysregulation of epigenetic protein production as the result of exposure to a biotoxin in genetically susceptible individuals *(20-24% of US population)*. This is not mold illness as we once thought, because it can be triggered by any biotoxin. At its core, CIRS is a fundamental failure of one branch of the immune system to properly activate the other branch of the immune system resulting in a dysfunctional response to and inability to clear biotoxins. Left untreated, the accumulated biotoxin then causes chronic elevation of inflammatory markers and cytokines along with a whole host of other downstream nightmares. People with CIRS feel like shit, look like shit, and often wonder if they will die in a steaming pile of their own shit.

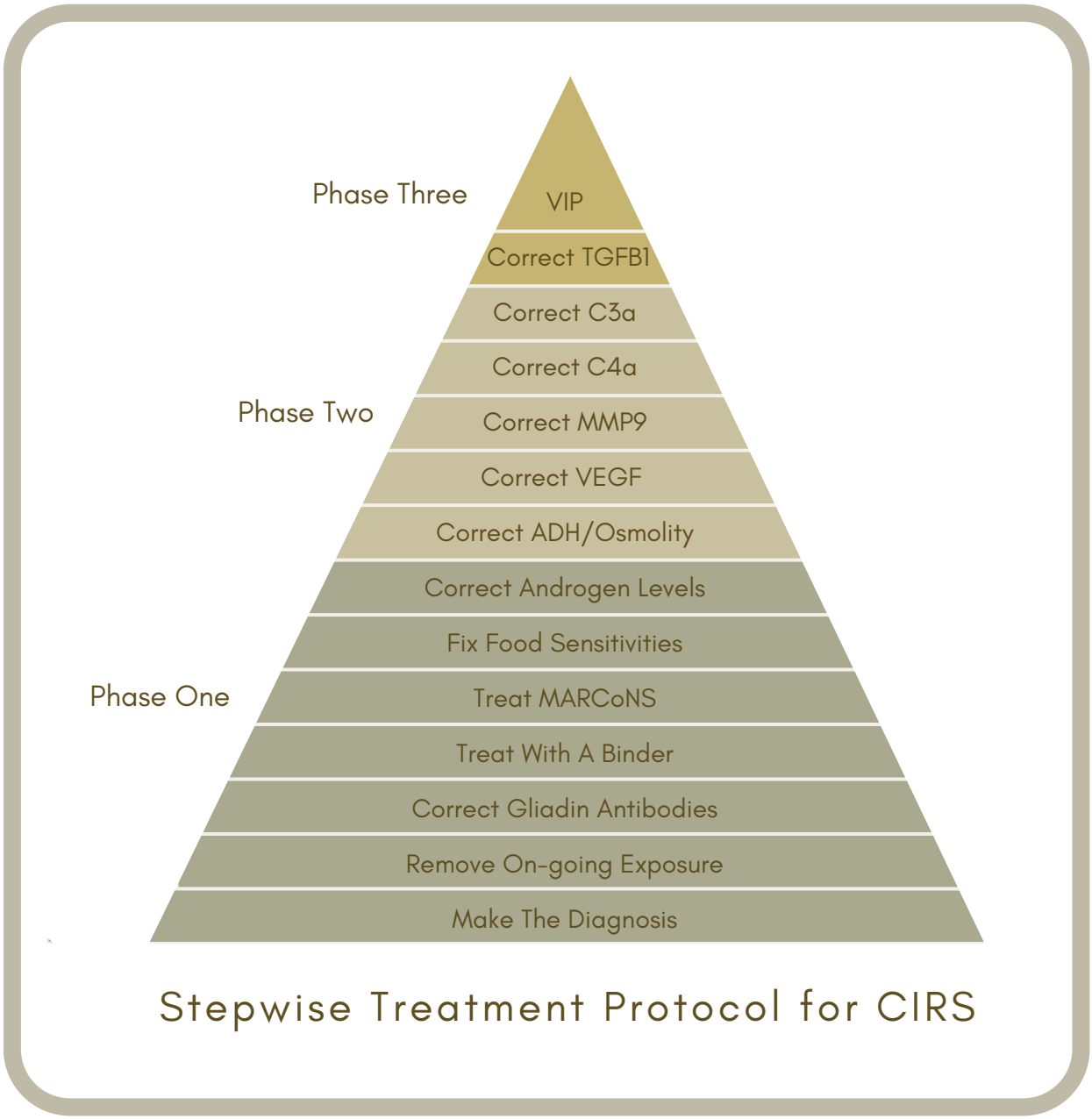
The CIRS Treatment Protocol *(as described by Shoemaker et al)* is the only scientifically-proven way to decon this inflammatory disaster zone. But good Lord Almighty is it complicated and confusing. I've been at this for more than a hot minute and trust me, it hasn't gotten much easier to get a handle on. I'm usually an advocate of 'do your own research', but in doing my own I'll tell you this:

There's a lot of shitty info online in the 'CIRS' department.



Not that you shouldn't try to learn about your own situation – everyone should want to do that. But I put this page together in an effort to compile the most accurate information – in so far as current research supports it. Is it concise? lol – No! CIRS is the big bad wolf of human illness. Successfully treating it involves an understanding of genetics, epigenetics, environmental sciences, proteomics, metabolomics, and therapeutics all wound together with the added confusion of individual variance. If that doesn't make you throw up, nothing will. BUT if you haven't tossed your cookies yet, let's continue.

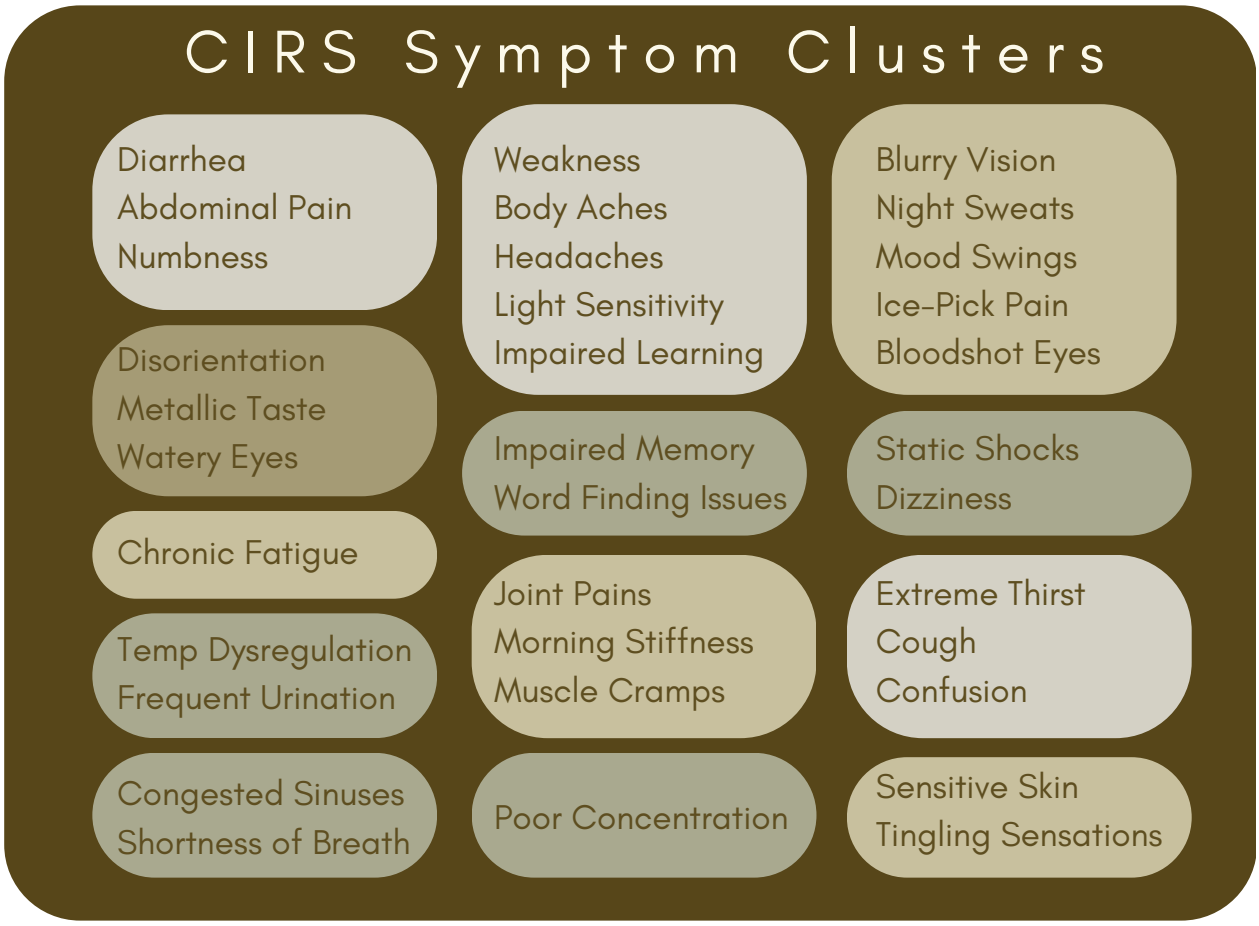
The CIRS treatment protocol is broken down into steps. You can do steps, right? I knew you could. The steps are important. We do them one at a time. It's like a baby learning to walk – you're the foggy brained toddler in this analogy.



Step 1: Make the Diagnosis

Were you exposed to a potential biotoxin? *(water damaged building, spider bite, tick borne infection, algae bloom, reef fish dinner, or spike protein?)*

Do you have symptoms of CIRS? The more the merrier in this department. We like to see folks hit a painful threshold of '8 out of 13 clusters' here before running them through the rigors of lab testing. Fatigue, weakness, pain, poor memory, poor concentration, lightheadedness, numbness/tingling, abdominal pain, mood changes - all of the fun stuff.



Not certain if you fit the bill? Take the $15, 15-minute, VCS *(visual contrast sensitivity)* test. Yes, I know your vision is fine. It's not that kind of vision test. Think 'special' vision test with superpowers of screening for CIRS - for cheap. Love cheap. Nothing else is.

Take the test here: VCSTest.com

-Make sure your vision is corrected to 20/50 or better
-Make sure you turn the lights on
-Get out a tape measure - *you'll need to be a certain number of inches away from your screen depending on its size*

Are your labs consistent with the diagnosis? Unlike '*chronic fatigue*' and '*fibromyalgia*', there are actual confirmatory blood tests for CIRS. LOTS of blood tests. We like to look at about a dozen of them – it helps us get a better picture of what's going on and an objective measure to monitor progress by.

Was everything else ruled out? There are countless disorders that cause fatigue and brain fog that aren't CIRS. Anemia, thyroid disease, hormone imbalance, crappy diet, etc. If you've made it this far, odds are pretty good that the easy things to fix have already been checked off the list, but we need to make sure.

Step 2: Remove Your Ass From the Fire

Is your house burning down? If so, let's vacate the premises, my friend. I hear the sirens of help in the distance. Most modern construction homes and office buildings use something called 'drywall' – a more cost effective option to plaster. Although advantageous for several reasons, drywalled environments can create prime breeding grounds for the worst pathogens, namely mold AND the other poisonous organisms that live with them. You don't need much water and it doesn't need to have been there long for these bad guys to hunker down while eating your drywall and poisoning your home. If there's any question at all about water damage, we need to do dust sampling. How about air sampling, you say? No. This has terrible sensitivity. No air testing allowed.

The US Environmental Protection Agency developed a test called the '*Environmental Relative Moldiness Index*', or ERMI test for short, as a tool to help quantify the moldy situation in a building. The test utilizes dust samples collected from the environment in question and PCR *(polymerase chain reaction)* tests them for 36 different kinds of mold. The amount measured is then compared to a database of reference homes determined not to be moldy disaster zones. They give you an 'index' or score which says 'hey, you should probably have someone come look at this moldy HVAC situation' or 'hey, this place looks pretty good – maybe we should check the office'. The 'Health Effects Roster of Type-Specific Formers of Mycotoxins and Inflammagens – 2nd Version', or HERTSMI-2 test, is like a mini ERMI. It measures the 'Big 5' mold species most commonly associated with illness:

- Aspergillus Penicilloides
- Aspergillus Versicolor
- Chartomium Globosum
- Stachybotrys Chartarum
- Wallemia Sebi

Say those 5 times fast. No, don't, you'll have a seizure. This is a less expensive test, but not recommended for initial testing – only for re-exposure potential. I put it here because you'll see it when investigating home test kits. Neither of these test for the other bad news bears which are gram negative bacteria referred to as '*Actinomyces*' and '*Everything Else*' or Endotoxin producing bacteria. A thorough home eval would include **ERMI**, **ACTINO**, and **ENDO** testing. A lot of folks just do the ERMI to keep it real in the pocketbook department – because where mold lives, actinos and endos almost invariably do as well.

There are two companies in the US that specialize in this kind of testing. I have no financial gain in linking them here. These folks are who you want to go with. Remember, we need to test surfaces for bugs, no sampling allowed.

Order home test kit here: **Envirobiomics.com** or **Mycometrics.com**

Did an infectious pathogen light the match? If so, let's make sure someone hoses that bug down. Tick borne infections are the main culprits here - most notably Borrelia *(the spirochete that causes Lyme)*, Babesia, and Bartonella. If there's suspicion on the presence of infection, we need to kill it with good old-fashioned antibiotics in most cases. There are antimicrobial botanicals as well, but the best approach seems to be antibiotics first, then the botanicals next. Providers have been trying to treat 'chronic Lyme' with long term antibiotics, protocols of different antibiotics, IV antibiotics, etc, etc. After 3-4 weeks of antibiotics, the bugs are dead. Symptomatic relief beyond that is likely due to the anti-inflammatory properties of those medications and not their antimicrobial ones. You're just whacking down your gut microbiome at that point.

Did your life come to a screeching halt sometime after 2020? I don't know, maybe following a COVID infection? If so, Spike protein needs to be on our radar. These waters are muddy on account of the high vaccination rate because no one really knows how long mRNA vaccines cause a person to make spike protein. There are some tests we can do to get an idea if needed but if spike is on our radar, we want to bump it off ACE2 *(angiotensin-converting enzyme 2)* and nAChR *(nicotinic acetylcholine)* receptors, and bind it. There are a handful of treatment options for this. No one thing seems to work for everyone, but everyone seems to respond to at least one tool in our kit. Sometimes we get lucky, and this step alone does the job. Sometimes it just gets added to the rest of the 'fix it' protocol.

Step 3: Lube Up to Repair Cellular Damage

- You might think this would come later, but we do this right on the front end. Your cells communicate with one another because of signaling that happens between their outer membranes which are made from lipids or *'oil'*. CIRS takes cell membranes and runs them through a veritable paper shredder. It takes a baseball bat to the inside as well, but imagine just the mess getting in. Cell membranes belonging to CIRS folks are in desperate need of attention. We call this *'the oil change'*. Ever go to the Jiffy Lube and watch them drain all that old sludgy oil out of your car before they put the new stuff in? That disgusting gunk is what your brain cells are swimming in with CIRS. It's gotta go. You need gallons of brand new Mobile 1. The oil change makes every step from here wayyy easier.
- We also use a fancy ginseng based nasal spray in this step to help hose down the fire of inflammation in the brain. This is the first of 3 nasal sprays in the protocol. The sinuses get a serious workout in the CIRS protocol. The mucous membranes in the nose mainline information directly to the brain. Learn to love spraying shit in your nose.

Step 4: Bind the Toxin & Get The Hell Out of There

Biotoxin detox requires the right kind of binder. Charcoal and clay will not work here. We need cholestyramine (CSM), colestevam *(Welchol from here on out, because it's easier to say - and type)*, or okra/beets. Here's the deal - biotoxins are negatively charged. Charcoal, clay are great binders for positively charged toxins, but, because they ALSO have a negative charge, they won't work for biotoxins. The bile acid sequestrants are positively charged. They grab biotoxins like a magnet, bind them in your gut, and into the toilet they go.

I mention three options, but there's only clinical data showing efficacy on CSM and Welchol so we typically stick with these. There are pros and cons to each. In general CSM works the best, but it works a little too well for most people to start with, it comes as a powder that needs to be mixed with something, and it has to be taken 30 minutes before meals. Welchol doesn't bind as tightly, but usually that's a good thing when starting out, plus it's in a tablet form and can be taken with meals instead of beforehand.

Commercially available CSM looks like Tang, smells like Tang, and contains complete garbage - just like Tang:

- Aspartame *(artificial sweetener, known carcinogen)*
- Citric Acid *(many adverse & allergic reactions)*
- Colloidal Silicon Dioxide *(lung cancer)*
- D&C Yellow No. 10 *(carcinogen, reproductive toxicity)*
- FD&C Red No. 40 *(hyperactivity, allergic reactions, banned in every country but ours)*
- Artificial Orange Flavor *(CH3COOC8H17...what?)*
- Maltodextrin *(allergic rections, weight gain, bloating)*
- Propylene Glycol Alginate *(diarrhea)*
- Xantham Gum *(gas, bloating)* You know I won't stand for this. We have this disgusting yellow poison compounded in its pure form which is a clean white powder. Still tastes like sand, but no crap added.

Step 5: Treat Co-Infections

- The big one here is a mean girls group of bacteria that can colonize the sinuses called *'MARCoNS'*. MARCoNS stands for multiple antibiotic resistant coagulase negative staphylococcus. These bacteria don't cause sinus infections, sinus congestions or allergies. The MARCoNS are silent stowaways in the nasal passages. They're saboteurs, quietly undermining your body's defenses. These bugs aren't just loitering - they're actively weakening the immune system of CIRS patients. They trade war tactics with other bacteria present in the sinuses as well as send toxins into the bloodstream that further f* up your labs. We swab your nose for MARCoNS and send you off with EDTA nose spray#2 if it's in there. Bad girls gotta go.

    - Staphylococcus epidermidis
    - S. hominis ssp. hominis
    - S. haemolyticus

This Is Why MARCoNS Matters:

- An infection with MARCoNS could be the reason behind many cases of persistent chronic fatigue syndrome, chronic rhinosinusitis, and leaky gut, as well as some instances of Alzheimer's disease.
- MARCoNS infection has also been strongly associated with Chronic Inflammatory Response Syndrome (CIRS), a constellation of symptoms most commonly linked to exposure to mycotoxins from mold or candida *(both fungus)*.

Step 6: Fix food sensitivities.
You know that your gut and your immune system are conspiring with one another to sabotage your brain. Wanna piss off your immune system? Piss off your gut. We test for food sensitivities and gut dysfunction here.

Typically add a special short chain fatty acid called *'butyrate'* at this time to help fix leaky gut and make necessary dietary changes based on test results.

Up until this time, it's recommended people follow something called a *'low or no amylose diet'*. If you don't know what amylose even is or care to learn, stick to a carnivore style diet instead. More info on diet below.

Living low amylose

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Step 9: Correct Lab Abnormalities *(MMP9, VEGF, TGFB1, C3a, C4a)*

- Labs get checked on the front end, abnormals get rechecked 3-6 months later. Some fancy pants work here to correct things that still need tweaking. This gets this and that gets that... Leave this migraine to me.

Step 10: Cross the Finish Line with VIP Spray

- Get ready for the victory lap, people. The finish line is in site. VIP *(vasoactive intestinal peptide)* is the last and hands down the most critical step in the whole protocol. This is how we reset things *'back to normal'* again. There's some pretty cool epigenetic testing that can be done which demonstrates how CIRS impacts gene expression. Genes are what you were born with. Epigenetics are the genes actively making proteins. In CIRS patients, there is a well described overexpression of very specific genes making loads of proteins that just end of fueling the fire.
- VIP does an amazingly cool party trick by resetting this gene overexpression back to normal. VIP marks balloon and confetti time – this is nose spray#3.

The Labs

Don't panic here, folks. There's no quiz at the end. I'm putting all this garbledegook here for you sleuthy types that want to geek out on your numbers. If numbers make you uncomfortable, well, then stop reading here.

CIRS BIOMARKERS

BIOMARKERS	PHYSIOLOGY	WHAT IT MEANS
High C4a, Low C3a	Innate immune system in overdrive due to toxins	A biotoxin burden is present
High MMP-9	Tissue barrier disruption and remodeling	Neuroimmune stress and or injury is likely
High TGF b-1	Immune suppression and activates Th-17-driven inflammation	Imbalanced innate-adaptive immune response is likely
Low MSH	Disrupted neuropeptide regulation of immune function	Impaired tissue-based immune defenses
Low ADH	Dysregulation of ACTH and kidney water conservation	Impaired stress response, Chronic dehydration
Low or High VEGF	Chronic tissue oxygen deprivation (hypoxia)	Imbalanced response to decreased blood flow to organs and tissues (capillary hypoperfusion)
Low VIP	Poorly controlled inflammation and blood flow	Impaired regulation of multiple functions
Low T-Reg Cells	Poorly suppressed inflammation	Chronic inflammatory response syndrome
Present - MARCoNS	Biofilm releasing endotoxins damaging MSH, increasing cytokines	Increased cytokines resulting in more inflammation and reduced immunity

HLA-DR *(Human Leukocyte Antigen-DR variety)*
This is the test that identifies genetic susceptibility to biotoxin illness. Think of this as the "lottery nobody wants to win" test. Generally speaking, there's a bazillion different potential gene sequences and about a handful of HLA haplotypes we need to worry about.

In a normally functioning immune system, the innate system is first to respond to a toxin. This is a suboptimal response, but it becomes effective when the innate response hands the problem off to the more specialized adaptive immune system. People with CIRS susceptible genetic patterns are unable to pass the baton from the innate to adaptive immune system, leaving the innate response in a chronically upregulated state. This dysfunctional response results in the over production of inflammatory cytokines and inflammation. This maladaptive response is what ultimately leads to the multi-system, multi-symptom illness known as CIRS. HLA haplotyping identifies susceptible individuals - if you learn to speak encrypted genetic code, understanding what the heck these results mean just takes a sec. Or a degree. Depends on your personal level of brain fog.

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	DRB1	DQ	DRB3	DRB4	DRB5
Multisusceptible	4	3		53	
	11/12	3	52B		
	14	5	52B		
Mold Susceptible	7	2/3		53	
	13	6	52A, B, C		
	17	2	52A		
	18	4	52A		
Borrelia, post-Lyme	15	6			51
	16	5			51
Dinoflagellates	4	7/8		53	
MARCoNS	11	7	52B		
Low MSH	1	5			

TGFβ1, plasma *(Transforming Growth Factor Beta-1, normal range <2380 pg/mL)*

TGFβ1 is a regulatory protein which plays a crucial role in immune function. It may be the single most important cytokine biomarker in CIRS. It has both pro and anti-inflammatory effects, just to keep things confusing. Persistently high levels are bad. High TGFβ1 levels are common in CIRS and are associated with the following:

- autoimmune disease
- overactive immune response
- tissue fibrosis EVERYWHERE *(fibrosis is the hardening/scarring of tissue)*
- increased pulmonary artery pressures *(shortness of breath, heart palpitations, edema/swelling, dizziness/fainting, fatigue)*
- highest in the HLA 11-3-52B haplotype
- high in people with hypermobility disorders *(long, lanky, athletes, Ehlers Danlos syndrome, aortic aneurysms)*
- respond to treatment with a medication called losartan *(an ARB often used for high blood pressure)*

Managing TGFβ1 levels is important for reducing inflammation and autoimmune responses in CIRS patients.

VEGF, plasma *(Vascular Endothelial Growth Factor, normal range 31-86 pg/mL)*
VEGF is a signaling protein and cytokine involved in the formation of new blood vessels. In CIRS, dysregulation of VEGF *(low or high levels)* can lead to inadequate blood flow and oxygen delivery to tissues, contributing to symptoms like the following:

- fatigue
- cognitive dysfunction
- exercise intolerance

In CIRS patients, one-third have low VEGF, one-third have high VEGF, and one third have normal VEGF. Normalizing VEGF levels is essential for restoring proper blood flow and tissue oxygenation.

MMP-9 *(Matrix Metallopeptidase 9, normal range 85-332 ng/mL)*
There's a whole family of MMPs which are all zinc dependent enzymes. High levels are common in CIRS patients. MMP-9 plays both good cop and bad cop in the building up and breaking down of extracellular matrix components (think collagen). Persistently high levels of MMP-9 are generally just bad news, leading to the following:

- Ongoing inflammation
- Cytokine production
- Tissue remodeling - *all of which are commonly seen in CIRS patients.*
- Increased vascular permeability/blood brain barrier *('leaky brain')*
- Crap for brains
- Crap for energy
- Lots of pain
- More sensitive to treatment with binders

It's best to 'pretreat' high levels of MMP-9 with high dose Omega-3s for 5 days prior to starting binders. Omega-3s also independently help to lower MMP, as can a 'low/no amylose diet'.

C3a and C4a *(Complement Components: C3a, normal range 55-486 ng/mL, C4a <2830 ng/mL)*
C3a and C4a are small fragments released by activation of the immune system. Their balance or imbalance plays a key role in the severity and manifestations of CIRS. These complement components help mediate inflammation but abnormalities can indicate specific immune responses to biotoxins.

High levels of C4a are often associated with the following:

- mycotoxin related illness *(even AFTER exposure has been removed, known as 'autoactivation')*
- mast cell activation *(itchy scratchy, allergic to everything)*
- dermatographia *(you can write your name on your forearm with your fingernail - and it stays there as a welt)*
- the *'sicker/quicker'* phenomenon seen in re-exposure when levels are extremely elevated *(>190,000)*
- brain fog
- shortness of breath/restrictive lung disease
- chronic fatigue

High levels of C3a are often associated with the following:

- More associated with tick borne *(Lyme)* biotoxin illness
- Vasoconstriction
- Reduced blood flow
- Increased blood vessel permeability *(leaky brain)*

VIP *(Vasoactive Intestinal Peptide, normal range is 23-63 pg/mL)*
VIP is a neuroregulatory hormone desperately wanting your immune system to just calm TF down. Lord! Can't we all just get along?? It turns down over production of inflammatory cytokines, nicely regulates blood flow, relaxes smooth muscle in the gut, and reduces pulmonary artery pressures. Not surprisingly, low levels of the VIP peacekeeper are common in CIRS patients and indicate a need for VIP replacement therapy, which we save for the last step.

MSH *(Melanocyte Stimulating Hormone, normal range 35-81 pg/mL)*
MSH is another extremely important neuroregulatory hormone – the most important, if I'm being honest. Like VIP, It works to keep the peace. Like VIP, it is almost ALWAYS low in CIRS. Low MSH means fatigue, pain, mood swings, anxiety, crap for sleep and shit for gut function. Low levels of MSH are associated with increased susceptibility to temperature instability, muscle pain, gluten intolerance, ADH/osmolality imbalance, leptin resistant weight gain, and cognitive issues. Low MSH is bad news bears.

Leptin *(normal 0.5-13.8 ng/mL for men, 1.1-27.5 ng/mL for women)*
Leptin regulates fat storage and signals satiety; imbalances can indicate metabolic disturbances. Leptin is both a hormone and cytokine produced by adipocytes *(fat cells)*. Are you one of the mystery patients who can gain weight in your sleep? Bet your leptin is sky high. The elevated levels of CIRS related cytokines block hypothalamic receptors creating leptin resistance. Leptin resistance decreases the body's ability to use fat stores as energy which can lead to dramatic weight gain/inability to lose weight despite caloric restriction/regular physical exercise.

ADH & Osmolality *(Antidiuretic Hormone, normal 1-13.3 pg/ml; Osmolality 280-300 mOsm/L) note: ADH is also called Vasopressin and Co-peptin by some labs*

ADH and osmolality regulate electrolyte balance and water retention in the body. Imbalances may cause symptoms like the following:

- Frequent urination & excessive thirst
- POTS (postural orthostatic tachycardia syndrome) or dysautonomia
- Frequent migraines
- Electric shocks *(that person who every time they touch a door handle or shake someone's hand...)*

The most common pattern of dysregulation seen in CIRS relative ADH deficiency in the setting of mid/high normal osmolality.

Common patterns of dysregulations:

absolute high: ADH > 13 or osmo >300
absolute low: ADH < 5 or osmo < 275
relative: ADH < 2.2 with osmo 292-300
relative: ADH >4 with osmo 275-278

Persistent dysregulation ADH/osmolality (typically low ADH, normal or high normal osmolality) can be treated with a short course of a medication called DDAVP.

ACTH & Cortisol *(AM Adrenocorticotropic Hormone, normal 8-37 pg/mL; AM Cortisol, normal 4.3-22.4 mcg/dL)*
These markers help evaluate the stress response and adrenal function, which are often dysregulated in CIRS. ACTH stimulates the adrenal glands to release cortisol, a stress hormone that plays a vital role in the body's response to stress, metabolism, and immune response regulation. In CIRS, the ACTH and cortisol levels are important for assessing the functionality of the hypothalamic-pituitary-adrenal (HPA) axis. Dysregulation in this axis can contribute to the following:

- fatigue
- poor stress tolerance
- blood sugar abnormalities
- weight loss
- weight gain
- difficulty maintaining normal blood pressures

Optimal ranges for these hormones are typically within standard laboratory reference values, but specific levels should be interpreted in the context of clinical symptoms and other test results

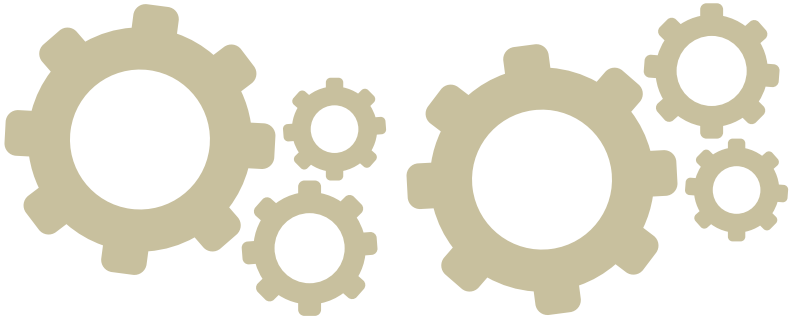
Common patterns of dysregulation:

- High: ACTH >45 or Cortisol >21, normal
- Low: ACTH < 5 or Cortisol < 4, normal
- Relative high: ACTH > 15 with Cortisol > 16
- Relative low: ACTH < 10 with Cortisol < 7

AGA *(Anti-Gliadin Antibodies, normal 0-19U)*
The presence of these antibodies indicate a problem with gluten. It is not diagnostic for Celiac disease, but when levels are elevated, gluten avoidance is recommended for at least 3 months. In CIRS, elevated anti-gliadin antibodies may reflect an overactive immune system and increased intestinal permeability ("leaky gut"). Addressing gluten sensitivity can help reduce systemic inflammation.

ACA *(Anticardiolipin Antibodies, normal IgA < 11; IgG <14, IgM <12)*
These antibodies are part of the antiphospholipid syndrome and can increase the risk of blood clots. In CIRS, their presence may indicate an autoimmune response, contributing to the complexity of the patient's condition and requiring careful management to prevent thrombotic events.

Switching Gears...



Diet - Low/No Amylose

Managing CIRS often involves a multifaceted approach, including dietary modifications aimed at reducing inflammation and supporting overall health.

You'll hear people talk about a 'Low or No Amylose Diet' in the same breath as CIRS. Wtf is amylose? Don't let that word throw you - amylose is just a plant starch. And in general, it's not bad for you. The idea behind the low amylose diet is to reduce the number of foods that can be rapidly metabolized into sugar and cause insulin instability. Poor insulin controls inflammation, which we're trying to keep to a bare minimum in CIRS.

Permitted Foods:

Anti-inflammatory Vegetables:
- Leafy greens (spinach, kale, Swiss chard)
- Cruciferous vegetables (broccoli, Brussels sprouts, cauliflower)
- Bell peppers
- Cucumber
- Zucchini
- Celery
- Carrots

Low Glycemic Index Fruits:
- Berries (blueberries, strawberries, raspberries)
- Cherries
- Apples
- Pears
- Kiwi
- Apricots

Healthy Fats:
- Avocado
- Extra virgin olive oil
- Coconut oil
- Flaxseeds
- Chia seeds
- Walnuts
- Almonds

Lean Protein Sources:
- Wild-caught fatty fish (salmon, mackerel, sardines)
- Free-range poultry (chicken, turkey)
- Grass-fed beef or bison
- Pasture-raised eggs
- Plant-based protein sources (tofu, tempeh, legumes in moderation)

Gluten-Free Grains:
- Quinoa
- Brown rice
- Buckwheat
- Millet
- Amaranth

Herbs & Spices:
- Turmeric
- Ginger
- Garlic
- Cinnamon
- Basil
- Rosemary
- Thyme
- Oregano

Beverages:
- Filtered water
- Herbal teas (chamomile, ginger, peppermint)
- Green tea (in moderation)
- Coconut water

Details & Guidelines:
Emphasize Whole Foods: Focus on consuming whole, minimally processed foods to maximize nutrient intake and minimize exposure to additives and preservatives.

Limit Sugar & Refined Carbohydrates: Avoid or minimize intake of sugary snacks, desserts, and processed foods, as they can exacerbate inflammation and contribute to insulin resistance. Opt for low glycemic index fruits and whole grains instead.

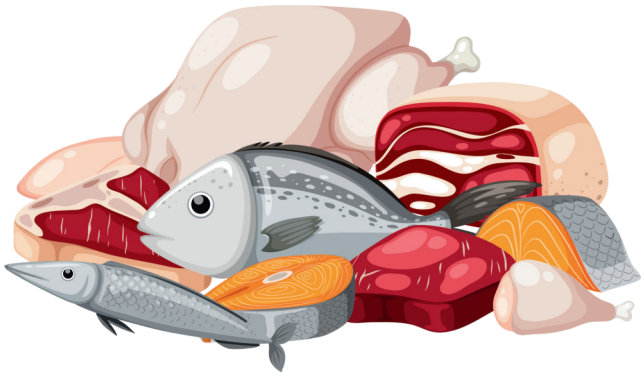
Choose Organic: Whenever possible, opt for organic produce, poultry, and grass-fed meats to reduce exposure to pesticides, hormones, and antibiotics that may exacerbate inflammation.

Incorporate Omega-3 Fatty Acids: Include fatty fish, flaxseeds, chia seeds, and walnuts in your diet to provide anti-inflammatory omega-3 fatty acids, which can help counteract inflammation associated with CIRS.

Stay Hydrated: Drink plenty of filtered water throughout the day to support detoxification and hydration. Avoid sugary beverages and excessive caffeine, as they can contribute to inflammation and disrupt hormonal balance.

Monitor Mold Exposure: Be vigilant about avoiding foods prone to mold contamination, such as coffee, peanuts, corn, and aged cheeses, as mold exposure can exacerbate symptoms of CIRS.

Diet: Carnivore
Sometimes the foggy brain reads about 'Low Amylose Diet' and just sees words, words, words, words. Forget it. Want an easier alternative. Eat meat.



See how much easier that is? Eliminate plants, eat animal products: fish, chicken, beef, seafood, wild game, lamb, pork, eggs, dairy (if you tolerate this), animal fats.

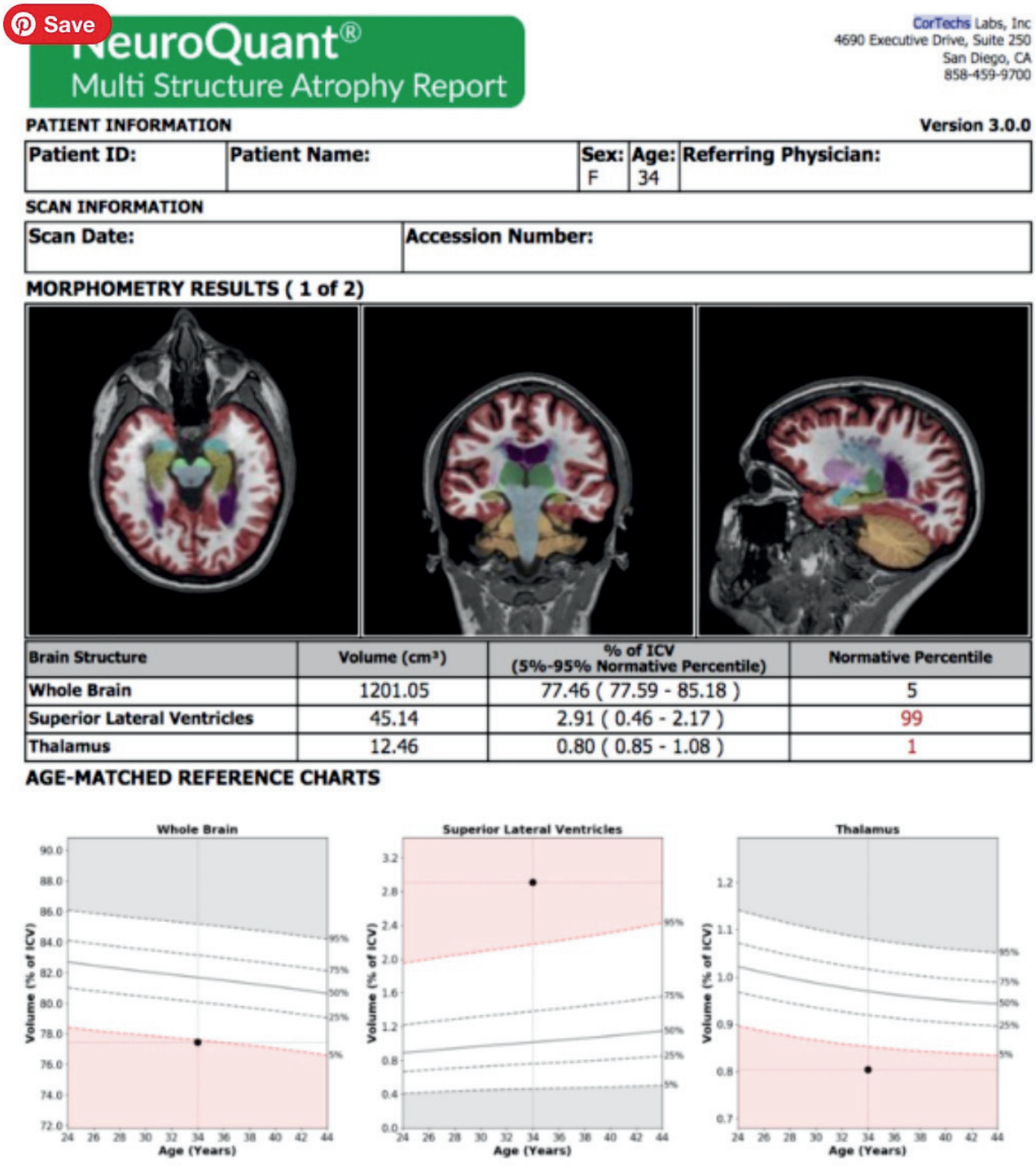
Simple, nutrient dense, low inflammatory. There are a lot of nay sayers of the Carnivore Diet. Ignore them. This isn't forever. It's just until your brain starts to work again. And it's easy. Did I mention that?

A few final fun facts:

NeuroQuant

Neuroquant: Volumetric Brain Imaging

"Brain segmentation and volumetric analysis for patients with neurodegenerative diseases."



Save

NeuroQuant®
Multi Structure Atrophy Report

CorTechs Labs, Inc
4690 Executive Drive, Suite 250
San Diego, CA
858-459-9700

PATIENT INFORMATION **Version 3.0.0**

Patient ID:	Patient Name:	Sex:	Age:	Referring Physician:
		F	34	

SCAN INFORMATION

Scan Date:	Accession Number:

MORPHOMETRY RESULTS (1 of 2)

Brain Structure	Volume (cm³)	% of ICV (5%-95% Normative Percentile)	Normative Percentile
Whole Brain	1201.05	77.46 (77.59 - 85.18)	5
Superior Lateral Ventricles	45.14	2.91 (0.46 - 2.17)	99
Thalamus	12.46	0.80 (0.85 - 1.08)	1

AGE-MATCHED REFERENCE CHARTS

This is one of the cool additional tests that can be done for diagnostic purposes and to further describe and characterize CIRS. Brain fog, memory/attention problems, and difficulties with higher executive functioning can be seen in a number of neurological conditions outside of CIRS. Additionally, CIRS can be driven by any number of different neurotoxins. Neuroquant provides a volumetric analysis of different areas of the brain that can accurately detail the cause of the neurologic deficits. Research has demonstrated that the volumetric changes vary predictably by disease state. For example CIRS-WDB (water damaged building) brain changes are different than those seen in CIRS-Lyme. CIRS-Lyme demonstrates different volumetric brain changes compared to patients with Alzheimer's Disease.

Neuroquant is a test that is commonly done before and then after treatment for CIRS to confirm RESOLUTION of abnormal volumetric brain changes. Seriously. How awesome is that.

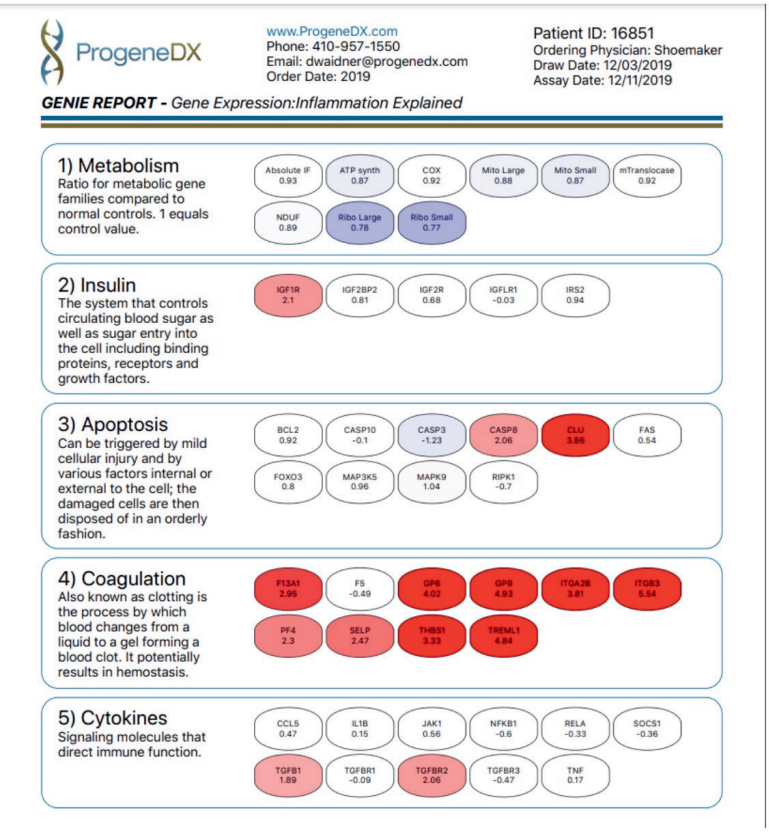
AND - this is the best part: Neuroquant testing costs less than $100. Brain MRIs vary in price and are a wee more than $100. But if you've had a brain MRI done in the past, it can be sent to a facility that utilizes Neuroquant volumetric data software for analysis. They take your images, run them through the program, and voile! We have a Neuroquant. Here in Green Bay, WI, a medical facility will be opening in April of 2024 that offers MRI scanning for a cash price of $600.

You're hemorrhaging dollars - I totally get it. BUT Neuroquant is a tool that can be employed if the lab numbers, course of treatment, or lack of progress don't add up. In the future, I believe this, along with epigenetic testing, will ultimately take the place of the biomarkers for the diagnosis and treatment of CIRS.

ProgeneDX
CIRS Assays

Genie: *Transcriptomics Testing from Progene DX*

"Progene DX has identified statistically significant, differentially expressed, genes and proteins in the blood of CIRS patients that now has been leveraged to produce better tools and tests for diagnosis and case management. Not only will these test identify CIRS in new patients, they can also be used to track recovery throughout the course of treatment."



tran·script·om·ics
/tran(t)ˌskripˈtämiks/
noun

Biology
the study of transcriptomes and their functions.
"the field of transcriptomics allows for the examination of whole transcriptome changes across a variety of biological conditions"

Genes are the paint palate you were born with. You received half from your mom and half from your dad. You can blame the color selections you get in life on them. But the picture that is created from those genes is far more complicated than just G-A-T-A-C-A, G-A-T-A-C-A, G-A-T-A-C-A (a little nucleotide humor - ignore me). Some of those genes are turned on, some of them turned off, and there is variable expression of many along the way.

In a fully operational system, specific genes should be expressed in a certain way. Let's say, gene "Jim" is supposed to paint pink. Pink paint from gene Jim is akin to a regular commute to work on the highway, cruising at 65mph. When Gene Jim sees police headlights flash in his rear view (think 'perceived danger'), he has some paint color decisions to make.

Was I driving too fast? Is this just a routine travel stop? If so, gene Jim might respond appropriately and turn down the 65mph pink speed to 60mph Rose, 55mph White, or maybe even a 50mph light blue. Totally normal reaction from gene Jim in response to a minor perceived threat. We'd call this 'variable gene expression'. A gene is supposed to be making a certain amount of protein, but in the face of a perceived threat, it changes the amount being produced - sometimes more ('hypermetabolism'), sometimes less ('hypometabolism').

But perhaps Jim just witnessed a car accident. A homicide. Maybe Jim just committed a homicide. Cruising down the highway at 65mph, those flashing lights in his rear view might illicit a different response from gene Jim. Instead of turning down his speed from pink to white, he might decide a high speed chase is a better idea. Pink is now hot red - massive overproduction of protein being made by gene Jim as he attempts an OJ style getaway.

Your genes behave like Jim. When things are 'all good', they produce an 'all good' amount of protein. When things are 'all bad' - like in CIRS - ' they tend to develop a lead foot of sorts and crank out insane and detrimental amounts of protein. That variable gene expression can be measured by the Genie test.

Genie is measuring something called 'transcriptomics'. When our genes are making protein, we call that gene 'transcription'. The study of gene expression is therefore referred to as transcriptomics. Very unique patterns of transcription abnormalities are seen in CIRS which paint the picture of what is going on in an individual patient right down to the level of gene activation.

Transcriptomics may very well be the future, not just of CIRS, but of medicine in general. Every individual experiences differences in their response to illness of any kind. Measuring and monitoring gene expression allows therapies to be precisely tailored to individual variance.

Conclusion

Hey, I warned you this would be anything but concise. Lot's of information here, I know. Lots of words you've never heard or read before. That's ok. The take home here is the following:

- Chronic fatiguing illness are real - you're not crazy.
- CIRS is an actual disease we can define with blood tests, brain tests, and gene tests.
- Treatment is highly studied and highly successful - the plan works if you follow it.
- Getting well again is 100% possible.

So it's really a message about hope. A long message, but a hopeful one nevertheless. There's lots of you zombies out there looking for that light switch to turn your brain and energy back on. We will help you find it. Promise.

If you or someone you know is suffering from chronic fatigue, fibromyalgia, pain, brain fog, long COVID, chronic Lyme, sensitivity to mold, or '*mystery illness*', please call our office to schedule an appointment. We can help.

Why You Should Not Use Ivermectin to Treat or Prevent COVID-19

December 10, 2021

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March 29, 2024

FDA to Delete Social Media Posts Discouraging Use of COVID-19 Drug

Share:

In June 2022, several doctors brought suit against the FDA over the FDA's Posts discouraging the use of a COVID-19 drug. "You are not a horse. Stop it with the #ivermectin. It's not authorized for treating #COVID," the posts read.

Ivermectin is an anti-parasitic medication that is approved for human and animal use, and was also used off-label to treat COVID-19. The doctors claim the FDA was interfering with their ability to practice medicine. However, the FDA argued the case should be dismisses because the FDA has sovereign immunity.

The settlement comes after the *U.S. Court of Appeals for the 5th Circuit* reversed the dismissal starting that the "FDA is not a physician" and the posts contained medical advice which is outside the FDA's authority, thus giving merit to the physicians' *ultra vires* claim.