

A wooden boardwalk with railings leads from the foreground into a field, ending at a large, glowing sun on the horizon. The scene is bathed in a warm, golden light, suggesting a sunrise or sunset. The overall tone is hopeful and serene.

THE AUTOIMMUNE MATRIX

An autoimmune blueprint to follow to
help you on your journey to healing

DR. OSBORNE

SCIENCE - FUNCTIONAL MEDICINE- COMMON SENSE - COMPASSION

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The Autoimmune MATRIX

The triangle of health.

In exploring the origins of autoimmunity, I want you to understand this diagram. We're going to call it the triangle of health. Now, at the core of your triangle is your genetic code, the gift your parents gave you when you were born. I want you to understand that your genes, all 23,000 of them are a lot like light switches. They can be turned off or on. If a gene is being turned on at a wrong time, it can lead to the wrong outcome. I'm going to give you an example. Again, I want you to understand this. Let's use diabetes as our example. If a person has a sedentary lifestyle, over consumes carbohydrates or sugars, their body's genetic code is naturally going to flip on genes responsible for helping produce insulin. Now, this genetic adaptation is your body's response to protect you from your behavior. In essence, the sedentary lifestyle and the high sugar diet activated your genes to product more insulin so that your genes could help adapt your body to those behaviors.

Now, most people would call that diabetes. As your insulin goes up, your blood sugars are being controlled, but over time your pancreas, the organ responsible for

producing insulin gets very tired. When the pancreas gets tired, it starts to fail and this is when our blood sugars go up or no longer producing enough insulin to accommodate our poor choice of lack of exercise and high sugar diet. This at this point we call it diabetes. I want you to understand, particularly like the example I just gave you, your genes are responsible for adapting to your behaviors. The adaptation itself becomes the disease. Doctors like to give people the name of a disease, but what that actually serves in most cases is it serves to victimize you. It serves to tell you that, "Hey, poor you, you have this condition or you have this problem and there's nothing you can do about it except for take this medication."

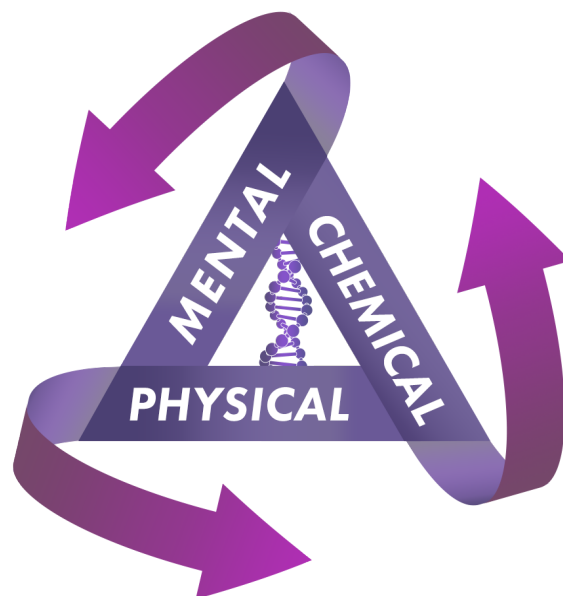
The reality is almost all chronic degenerative diseases is an autoimmune diseases are lifestyle induced. They're not genetic diseases like cystic fibrosis or Down syndrome, diseases that you are born with. These are diseases that you adapt into because of your choices and behaviors. I want to help you make sense of what your choices and behaviors should be or could look like so that your body readapts away from disease into vibrant health. Understanding that, we have three very, very big environmental influences over our genetic light switches. We have a chemical influence. We have emotional/spiritual and we have a physical influence.

Now, loosely defined chemistry is anything that comes into your body. It could be food. It could be the chemicals and food like pesticides or preservatives or dyes. It's the vitamins and the minerals, the carbs, the fats, the proteins, the water, the nucleic acids. Those are the agents of biochemistry. You have a choice of what gets to come in and that's the chemical influence. The chemical influence will activate certain genes. If you are consuming large quantities of pesticides, you are actually going to trigger your liver that produce detoxification proteins from your genes to help you get rid of those pesticides. Again, it's what you put in from the chemistry that impacts the behavior of the genetic light switch and that in turn leads to an outcome. Chemistry is what you put in.

Physical is what you do. You might have a sedentary type of job or you are sitting at a desk all day and not exercising and you are gaining weight, maybe you've become overweight or obese. These are physical attributes. Another example of a physical attribute would be somebody who has injured their knee and they can't properly walk

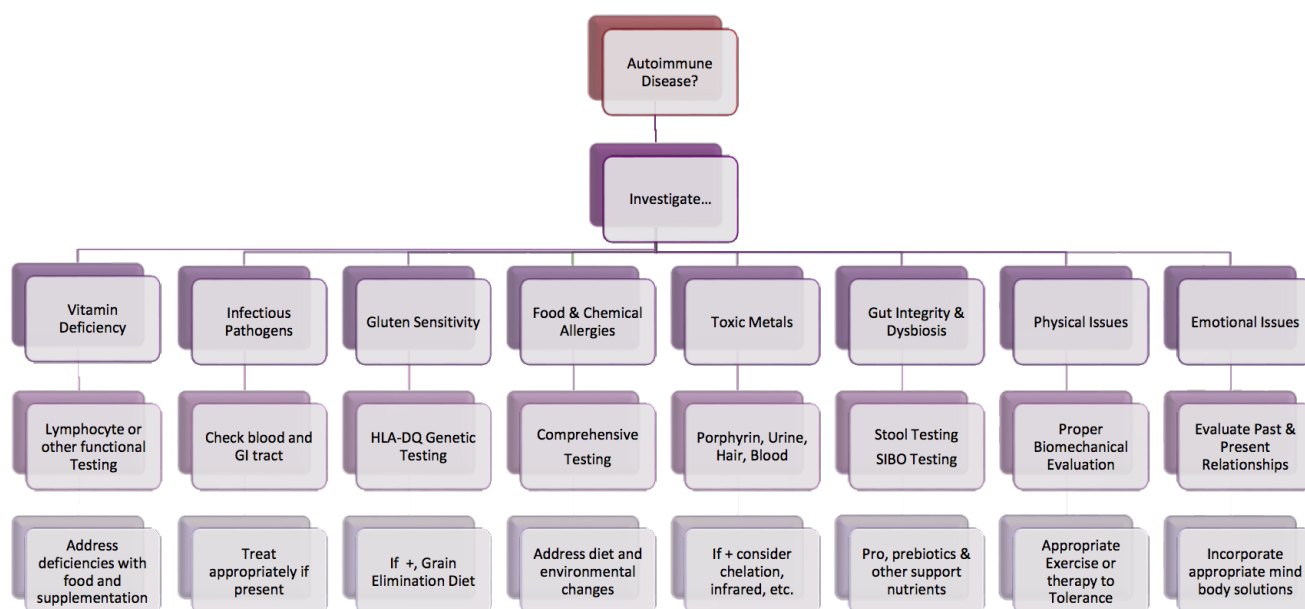
and exercise or somebody with a scoliosis. Physical is your physical self, your physical being. Then, you have the emotional/spiritual side. The emotional/spiritual side is basically your emotional support core group around you. It's your family. It's the people around you. It's your work. It's your work environment. It's your relationship with the Lord. I'm a Christian. Maybe you're not a Christian. Maybe religion is not something you fall under that you really want to dive into, but it doesn't matter what you believe there. Your emotional environment is very, very critical and plays a major role in controlling and influencing the behavior of your DNA.

Now, that you understand the three elements that can influence your genetic code, let's take a look at these different arrows. I want you to understand that your physical self can influence your chemical self and vice versa. Your chemical can influence your physical. Let me give you some more examples. If you don't exercise, what happens? Chemically speaking, you make less testosterone if you're a man and your muscles start to shrink and atrophy. A physical choice leads to a chemical hormone change that can turn right back around and leads to a physical degradation. My point in saying that is that each side, each triangle, each piece affects the other. That's the definition of holistic medicine or functional medicine. You can't look at the parts. You have to look at the whole.



In medicine, if we are talking about autoimmune disease, most doctors will artificially manipulate your chemistry using medications. That's the standard of care. You can artificially manipulate inflammation. You can artificially manipulate hormones. You can artificially manipulate a number of different chemical processes that can dampen symptoms. When you do it that way, you don't address the core origin of where the disease is coming from. It's very important that that part is being addressed.

This is the autoimmune recovery matrix. I designed it for you so that you could have a visual on what you need to be thinking about. Now, in this diagram, I want to explain. If you have the presence of autoimmune disease, these are the things that need to be investigated. These top boxes going across vitamin deficiency, infectious pathogens, gluten sensitivity, food and chemical allergies, toxic metals, gut integrity and dysbiosis or microbiome problems. These here or these first ones are representative of the chemistry, the things that occur, the things that come into the body that affects you internally in ways that you can see, but can affect the outcome of your health. These last two, physical issues obviously represents the physical triangle and the emotional spiritual issues obviously represents emotional spiritual. As we go through this, we are going to be, again, referencing back to this diagram because I want you to have a visual and I want you to have a structure, matrix if you will, so that your thought processes can be organized so that you have a maximal opportunity to recover.



Where this failure occur?

Now, I've been practicing functional medicine in my clinic for 16 years. I see patients from all over the world. My average patients been to six to eight doctors and they're still sick and they're still struggling and they're still trying to find a solution and an answer. This process that I've created, I've created in my clinic, it's evolved out of those 16 years of experience. I want you to understand that failure to address autoimmune disease occurs when this approach is piecemealed. What I mean by that is a lot of times patients will come to me and they'll have some of these different pieces already have been investigated. For example, somebody might come to me and they've already have somebody looked to see if they had Lyme disease, but that's all that person did. That person didn't look at food allergies. That person didn't look for vitamin deficiencies. That person didn't investigate toxic metals.

This person comes in and they've had one of these elements investigated or parts of these elements investigated, but nobody has gone at it from a comprehensive perspective. Remember, you have to approach it comprehensively. This is holistic functional medicine. If you approach it in a piecemeal fashion, you'll end up chasing your tail and I want to give you an example of this because, again, I think it's extremely important that you understand it. If you get a vitamin and mineral deficiency test and there are a lot of different ways to do this, there are a lot of different labs that can be used to identify vitamin and mineral deficiencies. Let's say that you come back and you have been identified as being magnesium deficient and zinc deficient and B vitamin deficient. The doctor puts you on magnesium and zinc and B vitamins. You don't really feel any better during the process, but you are supplementing and you are supplementing without feeling better and you are getting frustrated.

In this example, if that's all that was done, understand that if nobody measured gut integrity, then you don't even know whether or not your gut is appropriately breaking down the food or breaking down the nutrients so that you can absorb them.

This is, again, an example of piecemealing is we look at one thing, but we don't look at the other part of the thing that is crucial for the first thing to work. Again, it's important that you understand going away from this slide. I want you to understand if you piecemeal your care, you will be chasing your tail. Again, if you are zinc or magnesium deficient, you correct those deficiencies with high dose supplementation, but your gut is broken. You are not going to fix the problem. The gut has to be fixed too. If you are zinc or magnesium deficient and you start taking zinc and magnesium, but you also have lead toxicity, understand your body is going to still act like its zinc and magnesium deficient because lead displaces zinc and magnesium and nobody identified that lead toxicity.

Again, these are just examples. There are thousands of different examples that I can give you and there are thousands of different patients that I've seen that have come to me frustrated because they've been piecemealed by other doctors. I just want to encourage you use this matrix. If you are working with a functional medicine doctor or practitioner, use this matrix as a tool with that doctor so that you can ensure that your approach is not piecemealed. Remember that health happens when your genetics are smiling back at you what we call the phenotypic expression. Your genes plus your environmental influences equals you, equals the outcome of you. If you are suffering with some form of chronic pain or autoimmune disease, then there's something in your environment that's activating your genes in a manner that's consistent with poor health. If your genes and your environment are thriving and mingling together in a manner that's consistent with your good health, then you will be healthy. You will have a phenotypic expression of good health.

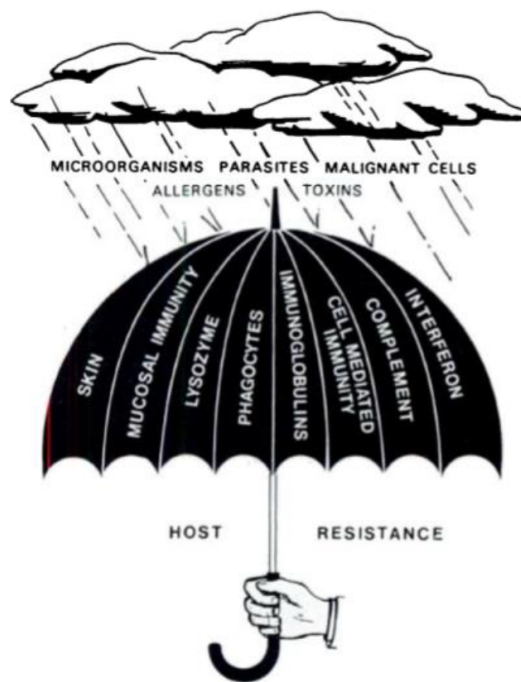
Chemistry and nutrients

Let's dive in. Part one, chemistry and nutrients. In the autoimmune recover matrix, we are going to breakdown each section for you. Part one is nutritional deficiency or nutrient deficiency. I want you to understand that biochemistry is

nutrition. We just don't learn the class of biochemistry as a nutritional class, but it is a nutrition. All of the known factors involving autoimmune disease are affected by nutrition and that's why it's such a crucial piece. That's why I'm starting with this piece. This quote from the textbook of Medical Physiology put out by Guyton and Hall,

"Each of the 100 trillion cells in the human being is living structure that can survive indefinitely and in most instances can even reproduce itself provided its surrounding fluids contain appropriate nutrients."

Again, this is direct quote from the medical textbook of physiology that's used in most medical schools across the world. The importance of nutrition can't be argued. It's absolutely critical.



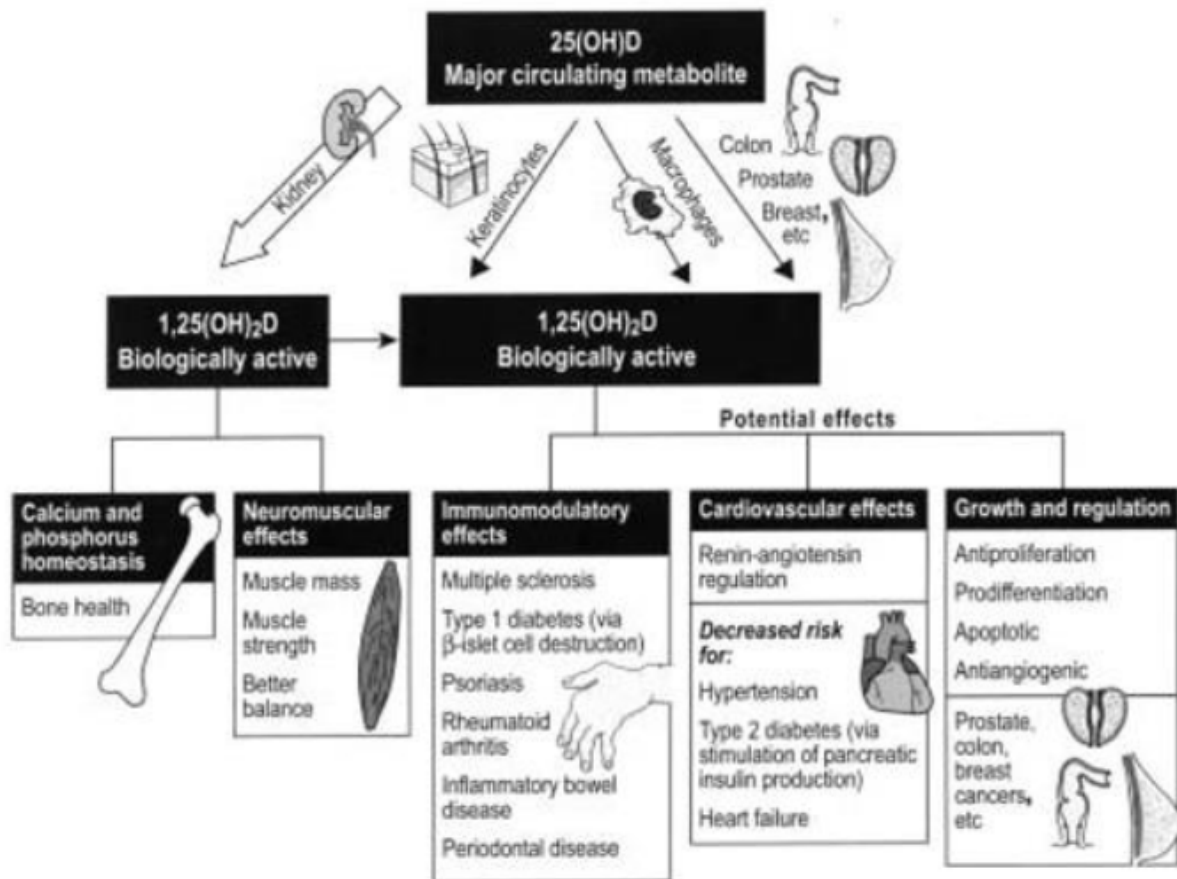
Am J Clin Nutr 1991;53:1087-1101.

Now, this diagram comes from the American Journal of Clinical Nutrition publication that many doctors read to get their information about nutrition, but it's a representative of how your immune system and nutrition are integral. They play a role in each other. Your immune system acts as an umbrella that protects you from the environment. If we think about the environment, we go back to what I showed you before with the triangle of health, environmental influences, biochemistry, environmental influences like microorganisms, bacteria, parasites, allergens, toxins. Your immune system is the umbrella that protects you from that storm and you've to several categories within your immune system or that drive or that create your immune system that rely on nutritional sufficiency. Meaning that if your nutrient levels are low, if you are malnourished, your immune system won't work to protect you from the environmental storm of toxins and microorganisms and other things.

That being said, we've got to start with examining nutrition. I want to give you an example and this example, vitamin D deficiency and decreased exposure to solar UVB radiation have been demonstrated to increase the risk of many common cancers, type 1 diabetes, which is an autoimmune disease; rheumatoid arthritis and multiple sclerosis. These three bold diseases are autoimmune diseases. What I want you to know about cancer, cancer is late stage autoimmune disease. Usually, people will develop autoimmune disease first and the longer they have autoimmune disease, the more their immune system is activated attacking themselves over time the weaker it becomes. Once it becomes too weak, that's when cancers allowed to flourish. I want you to think of cancer as late stage autoimmune disease.

Image Holick, Michael. Am J Clin Nutr 2004;79:362-71.

In this example, vitamin D deficiency, lack of sunshine, again, what have we've been told over and over and over again by the dermatology community? Stay out of the sun, lather up with sunscreen, avoid the sun at all cost. Yet, one of the nutrients that comes from the sun prevents cancer, prevents autoimmune disease. If you look at this diagram, you can see right here in the middle. Vitamin D's one of its effects is immunomodulatory. Meaning, it helps the immune system function appropriately. It modules up or down. Whether the immune system is reacting too weakly or too strongly, it modulates that. All of these different autoimmune diseases are linked to



vitamin D deficiency. It's probably the most well-studied nutrient that has a link to autoimmunity, not the only one, but probably the most well-studied.

Essential nutrients from food. When I say essential nutrients, I mean vitamins, I mean minerals, I mean certain amino acids and certain carbohydrates and fats. These things come from our food and they are essential for our bodies to work. Think of your body as a factory. If you think of each cell as a factory, for example, your skin cells are a factory. There's actually multiple different kinds of factories within a skin cell. Some of those factories secrete an oil to protect your skin. Imagine in that little part of the cell where you are making oil, you are making that oil from fat and you are using vitamins and minerals to properly put that fat together. If you don't have adequate quantities of these nutrients, you are not going to properly produce that oil. Again, that's just one example of thousands and thousands of examples. Each cell has many factories in it and those factories require vitamins, minerals, carbs, fats, proteins, nucleic acids and water to do their jobs.

One deficiency can inhibit the healing process. I just gave you the example of vitamin D. Now, in my experience working with autoimmune patients, my average autoimmune patient has at least four deficiencies. These four I've listed here are the most common I see in my practice with 16 years of experience. Vitamin D, vitamin B12, zinc. Water is a nutrient. Sometimes it's ignored as a nutrient and omega-3 fatty acids. Those nutrients are the most common that we'll see in our practice. For most nutrients, serum testing has limited value and that's important for you to know because a lot of doctors will run serum B12 and they'll look at your B12 level and it will be normal in the serum. It will be a false normal a lot of times.

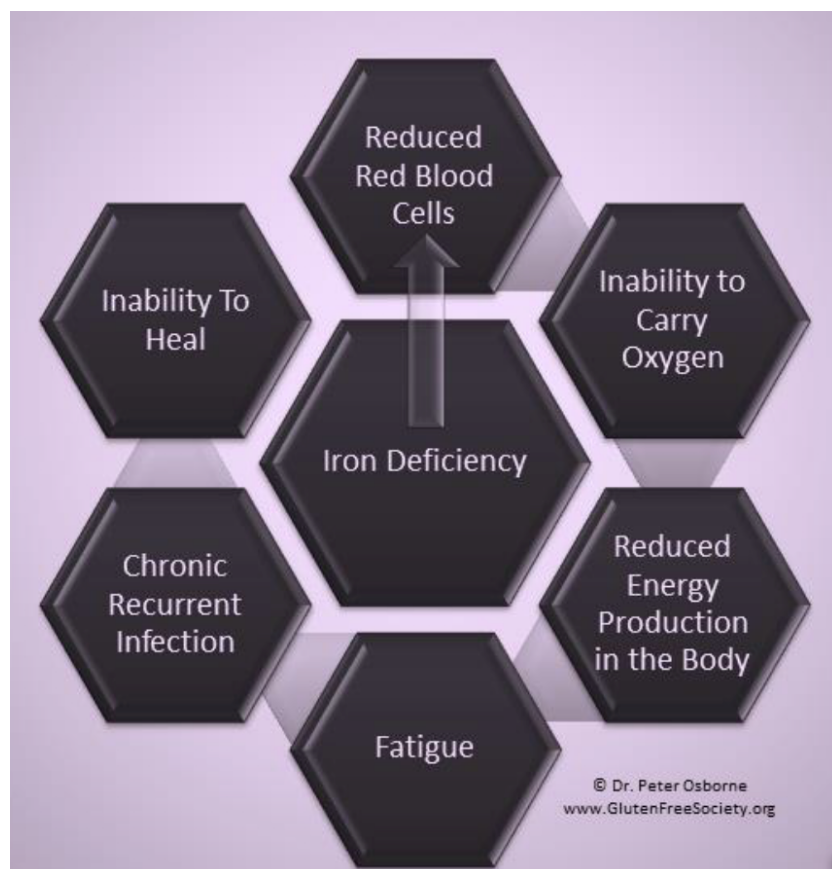
What happens is the serum goes up and down based on your last meal. Maybe your last meal was a steak and it had a lot of B12 and you process that, it got in your bloodstream, and you have circulating B12 that's within a normal range in your bloodstream. Again, your body storage of nutrients is a much more important indicator of your overall nutritional status than your circulating serum. You have to be careful with serum lab testing. This is a conversation you can have with your doctor.

The other important part about essential nutrients from food is that gut function problems have to be ruled out simultaneously. You don't just want to know that you have a bunch of deficiencies. You want to know why you have those deficiencies. There are major reasons why we might have a nutritional deficiency. One is because we don't eat enough of the nutrient, but another reason is maybe our gut function is compromised. Another reason is maybe we have an underlying medical condition or autoimmune condition that requires you need more of certain nutrients to control the immune fire that's going on.

For example, autoimmune disease requires more zinc to control because zinc helps regulate the immune function. People with autoimmune disease tend to have more deficiency and zinc not because they're not necessarily getting it in their diet, but because they are using. They are burning through more of their zinc supply to help regulate this autoimmune problem. Gut function problems have to be ruled out. You've got to know whether or not a person is capable of being able to absorb or digest the nutrients from the food that they're going to eat or the supplements that they're going to take.

Here are some things that are often not considered, water as I mentioned earlier. Water is a nutrient and so a lot of people are dehydrated. They just don't drink enough or they don't eat enough whole food. A lot of the food in our food supply today is packaged, is processed. In part, it's been partially dehydrated, so it doesn't contain the water that would have otherwise contain. We are eating semi-dehydrated foods and not drinking enough water and the fluids that a lot of people drink are fluids like sodas and coffees and teas, which contain caffeine, which causes to become dehydrated because caffeine is a diuretic.

We see a lot of times water deficiency as being some things very easy to correct and it's very easy to correct. We can eat more whole foods. Fresh fruits and vegetables contain the majority of what's in those food is water. In of itself, you can get a lot of water from fresh fruits and vegetables, but also drinking water, the obvious drinking the water itself. Oxygen. Oxygen is a nutrient. We often times not think of the oxygen as a nutrient because we don't eat it. Typically, we breathe in oxygen through the lungs and that oxygen if our red blood cells are working appropriately, our red blood cells pick that oxygen up and they deliver that oxygen to our tissues and to our cells so that they can generate energy and function.



One of the things I commonly see is oxygen deficiency because of iron deficiency. Iron deficiency is one of the most common deficiencies in people with gluten sensitivities, especially those with celiac disease. Iron deficiency remember is required for the production of red blood cells and that leads to an inability to carry the oxygen, so you can breathe the oxygen in through your lungs all day long. If your red blood cell production is low and you don't have enough resources to carry the oxygen, then it won't get to your tissues. You'll have reduced energy, reduced energy production by the cells, by the tissue that leads to fatigue, that leads to other problems like chronic recurrent infection.

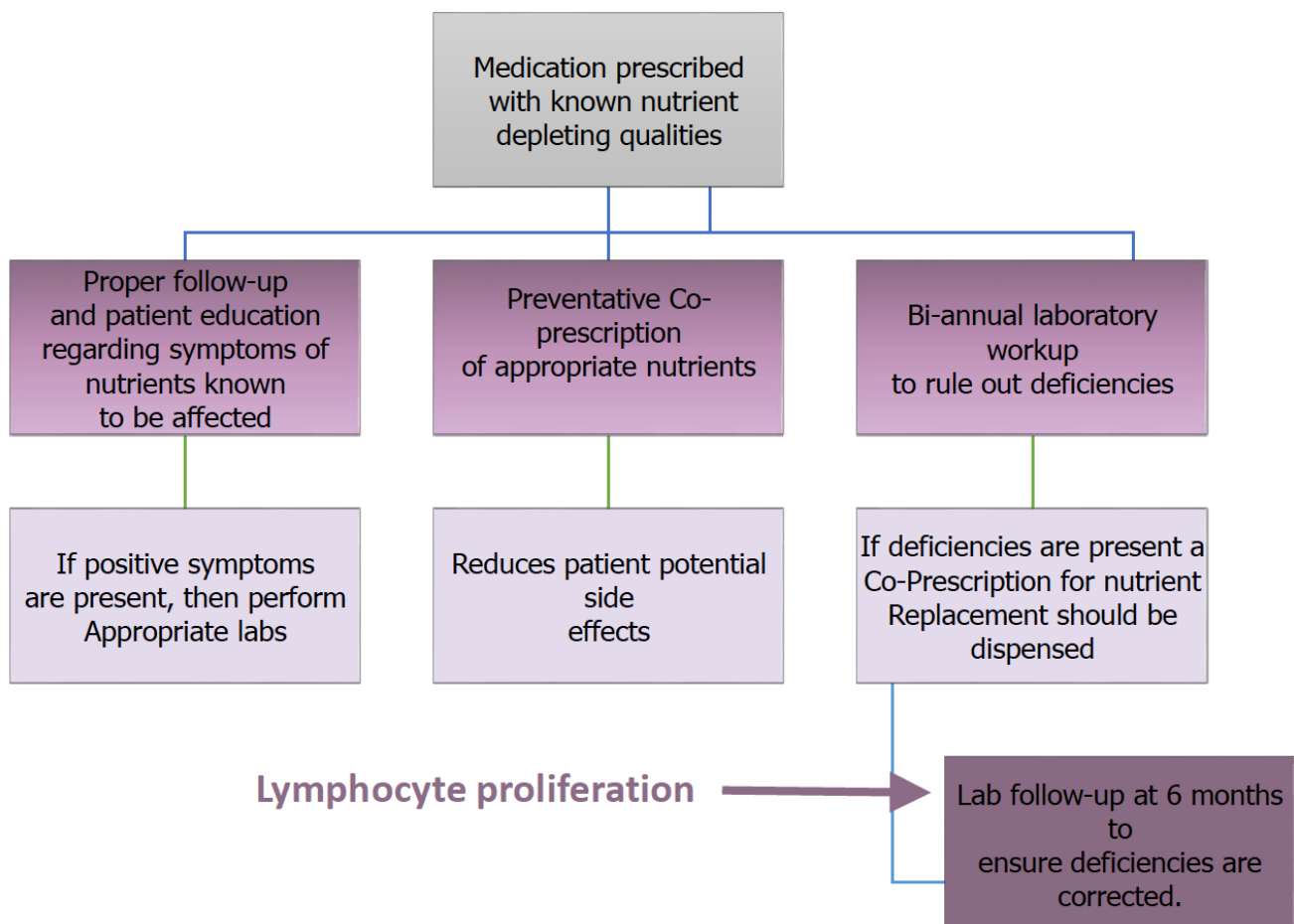
If you can't generate enough energy to build immune strength, then you are more susceptible to infection and that creates more inflammation. It creates a cycle where you are not capable of healing. This again is just an example of what often times is not considered by people. Oxygen deficiency as caused by anemia. Iron deficiency is only one kind of anemia. You can be B12 anemic. You can be folate or vitamin B6 anemic or vitamin C anemic. There are a lot of nutrients that are required in the factories of your cells to help your red blood cells produce the hemoglobin that's necessary to carry the oxygen.

Then, we have the nutrient of sunshine it's often not considered. I mentioned that vitamin D, again, I mentioned it earlier. Sunshine is what makes the majority of the vitamin D in our day-to-day needs. We can get vitamin D from things like mushrooms or if we eat liver on a regular basis, but most of the vitamin D that we are going to get on a regular basis will come from sunshine. Sunshine provides vitamin D as a nutrient. Sunshine also provides melatonin as a sleep nutrient. It's a hormone. You need melatonin in order to sleep and you need sleep in order to heal. These are just again things that often times are not considered nutritionally. Then, the use of medications and their potential risks. Most autoimmune patients are usually taking some degree of medication, some list the average patient on autoimmune protocols in allopathic standard, allopathic medical office. Generally, three to five or more medications are being used.

One of the things you have to understand and you have to keep in consideration is that common medications prescribed for the treatment of autoimmune disease can

cause vitamin and mineral deficiencies that can hinder the immune system. Going back to what we were talking about earlier, your immune system needs nutrients to properly function, to properly run itself. If you are taking medicines to treat your disease that block those nutrients, then at the end of the day, you're going to be chasing your tail. The medicines are only going to do so much for you before malnutrition sets in and really puts a kink in the system of treatment.

This flow chart or diagram represents kind of something you can show or take to your doctor. Take notes here. Medication prescribed with no nutrient depleting qualities. This is just a flow chart you can take to your doctor. What are the steps? If the doctor is going to prescribe a drug that causes vitamin or mineral deficiency, then he needs to prescribe the vitamin and the mineral to go along with the drug to reduce the side effects of creating those nutritional deficiencies. Very simple to do.



There should also be a proper follow-up in regards to your education. In essence, if he's going to write the prescription for the medicine, he should be educating you about which nutrients are going to be affected so that you can have informed consent about the potential negative side effects or consequences of using that medication. Of course, if you know that and you understand what the symptoms of those nutrient deficiencies are, you can inform your doctor so that then he can in turn run the appropriate lab testing to help identify what nutritional deficiencies were there.

I also recommend a biannual laboratory work up to rule out nutritional deficiencies if patients were on medicines that are causing depletion. Again, instead of guessing, we can also get very specific whereas, for example, steroids can cause calcium and magnesium deficiency. You could take somebody who is on a low dose of corticosteroid and you could also put them on calcium and magnesium, but the reality is maybe the dose isn't high enough. If you are not testing, you are guessing and this is where you want to really work with your functional medicine doctor to do the appropriate lab tests. Again, that six months lab follow-up is important, one, to help you identify but; two, to also make sure that if you are taking supplements to correct nutritional deficiencies or to support the potential for nutritional deficiencies that you are actually monitoring to make sure that it's working.

What kind of testing is going to work best for this? The methodology or the technology is called lymphocyte proliferation. This type of lab testing can identify nutritional deficiency storage as opposed to measuring what's in your blood and your serum, which changes from hour-to-hour, from day-to-day based on the last meal. We can actually look inside the cell and we can measure the storage of vitamins and minerals over a six-month period of time. Lymphocyte proliferation is a lot like a hemoglobin A1c test for diabetics. The hemoglobin or the A1c test measures average blood sugar over three-month period of time while lymphocyte proliferation can measure nutritional status for a six-month average. It gives you so much greater indicator of a person's nutritional status.

Home-based action steps for nutrition.

First, eliminate processed foods. Most of them are highly processed and the processing removes nutrients. The FDA and the government has stepped in and fortified many processed foods with vitamins. The problem with it is a lot of the vitamins that are being fortified into the foods are synthetic versions of the vitamins. For example, folic acid is what is used to fortify many processed foods. If we have an MTHFR mutation our bodies don't recognize folic acid, so even eating those processed foods that are fortified with folic acid, our bodies don't recognize it and it can actually create problems. The more we can eliminate processed foods and eat and choose organic foods to minimize chemicals, to minimize processing and minimize a lack of nutrients and the more we can choose nutrient dense foods that are easy to digest. Again, why easy to digest? We are trying to give our gut a break in the process of autoimmune recovery.

Examples of these types of foods; bone broth, organ meats, berries, soups that are cooked down and we'll go into more detail about this later on, and fermented vegetables. These are going to be some of the most nutrient dense foods that are the easiest to digest. If you are suffering with autoimmune disease and you have a lot of gut symptoms, your gut is compromised, these are going to be great choices for you as you start to begin taking steps toward recovery.

I'm going to try to give you walk away points, action steps that you can take at home, but I also want to give you action steps that you can take working with the functional medicine doctor. Again, this is where you want to take notes. You want to take this information into that doctor you are working with.

Consider the following labs to assess nutritional status.

1.- Nutritional analysis using lymphocyte proliferation, which I talked about a moment

2.- Iodine loading test that can measure your iodine status.

3.- 25 OHD is a good way to measure your vitamin D status.

4.- Iron panel with ferritin, very important to run the ferritin, will help assess your iron status. This is often times overlooked because a lot of times doctors don't run this panel here. They all rely on a complete blood count or CBC to measure iron and sometimes it can be missed. Make sure your doctor is running that iron panel with ferritin.

5.- CBC, complete blood count. This measures your white blood cells and your red blood cells and the different types of white blood cells you have and the sizes and shapes and colors to help us indicate whether or not there's a different kind of anemia going on.

Of course, a chemistry panel help us assess. Is your liver working? Is your kidney working? Remember, if your liver is not working, what does your liver do? Part of what your liver does is it stores nutrients and that's what we are talking about here. If you've got a faulty liver, it's not going to be as effective at distributing nutrients and storing nutrients for you. It's something that we might have to address along the process. It needs to be evaluated.

6.- homocysteine and what this does is it measures a chemical that is dependent upon vitamin B12, folate, vitamin B6 and vitamin B2. Homocysteine can be an indirect marker for the nutritional status of those four B vitamins.

7.- Hemoglobin A1c. This will help us to detect our average blood sugar, which is important because if blood sugars are running high, it makes your blood really thick and really sticky. It makes it harder to deliver these nutrients. This is what we are talking about. We are talking about nutrition. If our blood is sticky and thick, then what's going to happen is your cells won't deliver vitamins and minerals. Your red blood cells, your protein carriers will not deliver vitamins and minerals through your bloodstream as effectively or as efficiently and you can become malnourished because of blood viscosity issues.

8.- Have your doctor run a C-reactive protein and the hs stands for high sensitive. This is a marker of inflammation, but often times inflammation is an undertone to chronic autoimmune disease. This test often times allows the doctor to monitor whether or not

your action steps are working to reduce inflammation. For example, if you get a baseline on this marker and your level is a 10 or a 20, it needs to be by the way under one. If your level is super high, you take action steps to lower it and then we can come back and remeasure it down the road. If it's dropping or coming down, then we know what we are doing is having an impact or affecting the overall burden of inflammation on your body. It's a tool that a doctor can use to help assess you in the long run.

9.- Insulin. Insulin is a great marker to measure because it's telling us how much stress or pressure your pancreas is under based on the quantity of sugar coming into your bloodstream. Your fasting insulin is important. You do this test fasting. You don't want to do it after meal because it will naturally be higher after meal, so do it fasting first thing in the morning.

Caution with serum lab test for nutrients due to extreme inaccuracies. These types of serum lab test I see all the time. Doctor will run a chemistry panel. It will include a calcium. It's not accurate for calcium storage in the cell. It's only accurate for calcium electrolyte balance in the bloodstream. It's not going to be very helpful for somebody who has got calcium deficiencies. A lot of inaccuracies in serum testing. Make sure using that lymphocyte proliferation type of technology.

If necessary, implement diet change or pharmaceutical grade supplementation to accommodate these deficiencies, whatever you find. Everybody is unique and different and that's why we are having this conversation. We don't just have generic protocols where everybody gets a multivitamin and everybody gets this quantity of B1 and this quantity of B2, etc. We have to have a specific action step or specific action plan based on your unique individual needs. Otherwise, we are guessing and guessing fails most of the time. Something else action step to get with your doctor about. You can print this out.

These are just common examples of nutrients that are lost by certain medications. In essence, certain blood pressure medications can affect certain nutrients. This chart, this diagram just list those out for you. Make sure you are taking notes here. You want to make sure that you have the conversation with your doctor about drug-induced nutritional deficiencies. Get informed consent about the medicines

DRUG INDUCED NUTRITIONAL DEFICIENCIES

DR. OSBORNE

SCIENCE - FUNCTIONAL MEDICINE - COMMON SENSE - COMPASSION

Medication Type	Common Examples	Vitamins Depleted	Minerals Depleted	Antioxidants Hormones and Nutrients Depleted
BLOOD PRESSURE	Diuretics such as furosemide and Lasix	B1, B6, C	Magnesium, Calcium, Potassium, Zinc, Sodium.	Coenzyme Q10
	Thiazides (HCT)			
	Beta Blockers		Magnesium, Potassium, Sodium	Coenzyme Q10, Melatonin
CHOLESTEROL	Statins like Zocor, Lipitor, Crestor	D		Coenzyme Q10
	Fibrates	B2, B6, B12, Folate		
	Colestid, Questran	A, D, E, K, Beta Carotene, B-12, Folate	Iron	
DIABETES	Glucophage and Metformin	B-12, Folic Acid		Coenzyme Q10
PAIN ANTI-INFLAMMATORY	NSAIDs: Motrin, Naprosyn, Lodine, Aspirin	C, Folic Acid, B-12	Potassium, Iron, Magnesium	
	Steroids: for pain, asthma, skin conditions, etc.	A, C, D, Folic Acid	Calcium, Magnesium, Potassium, Zinc	
HEARTBURN REFLUX	Prilosec, Prevacid, Aciphex, Nexium, Protonix	B12, Beta Carotene		Protein
	Zantac, Axid, Pepcid, Tagamet, Tums, Rolaids	D, B12, Folic Acid	Calcium, Iron, Zinc	Protein
HORMONE REPLACEMENT	Oral Contraceptives: Premarin, Yasmin, as well as estrogen containing Menopausal medications	B2, B3, B6, B12, C, Folic Acid	Magnesium, Zinc	Selenium
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that you are taking and the potential possibility for nutritional loss the longer you are on those medications, creating a kink in your healing process.

Now, we are going to move on. We just finished talking about the matrix vitamin deficiency aspect. Now, we are going to move over to gut integrity and dysbiosis. Again, going back to that triangle of health. We are still in the chemistry block. Biochemistry is what we are referring to. This whole block is biochemistry. We are moving on to gut integrity and dysbiosis.

Chemistry - The Gut...

In the chemistry of the gut, understand that your gut is ... We tend to think of eating as a social grace because most of us have a social environment around food. We grew up around celebratory eating. It's just a part of our culture. It's a part of who we are, but what I want you to understand about eating is that eating is an act of warfare. Your gut does battle against everything you put in your mouth. We want to prepare your gut to do good war, to be strong in that battle. Otherwise, what's going to happen if your gut loses the war, we end up with a major problem and that major problem can convert to autoimmune disease.

We want to prepare your gut for the battle of eating. In so doing, we are going to talk about gut chemistry. Digestion and absorption, a major function of the gut. Destruction and elimination of toxins. The gut is a quarantine zone. Remember, it's a holding tank for food so that you can separate the good from the bad. You poop out the bad or you excrete the bad and you absorb the good. If that process, if that function is compromised and we are absorbing bad, then we can end up creating a major, major problem in our health. The gut also harbors the microbiome, which by the way is getting ready to be classified as a human organ. We are outnumbered 10 to 1 by bacteria and our microbiome is a very, very large part of that bacteria host in our bodies. The gut regulates water and electrolyte balance. It's very important for that function. The gut houses 70 to 80% of the entire immune system.

Understanding the gut, we have five major firewalls that help the gut do its job.



One of those firewalls is called the GALT. It is the immune system. This is 70% of the entire immune system. GALT is an acronym, simply stands for Gastro Associated Lymphoid Tissue. This is like a big set of tonsils that wraps around the outside of your small intestine.

Then, you have the tight junctions. These are like the tiny anchoring proteins that hold your gut cells together and prevent leaky gut.

Mucosal IgA. IgA stands for immunoglobulin A. It's a type of antibody. It's the first line of defense. We make it in our saliva. We make it in our intestines and it binds to chemicals that binds to toxins and helps us get rid of it.

Then, we have the friendly bacteria. Understand what the microbiome does. It helps you digest your food. It helps you produce the fuel source to feed your colon cells, that fuels our called short-chain fatty acids. You can't make those without friendly gut bacteria, but the gut bacteria also communicates to your GALT. These two talk to each other. The gut bacteria warns the GALT about what's in the gut, so that the GALT can prepare for it. It's called immune crosstalk. We want to make sure the friendly bacteria are there. We want to make sure we have a healthy microbiome.

Then, the stomach acid. The stomach acid is responsible for destroying infectious microorganisms, viruses, bacteria, other things that are in the food that we are going to eat, but the acid is designed to destroy.

The stomach acid is necessary to digest and absorb protein and B12 and zinc and magnesium. That's why some medications like antacids, they block protein absorption because they affect stomach acid. Again, we want a strong stomach acid. We want a healthy stomach secreting acid because these five barriers combined equal a very healthy, very strong immune system equal very healthy gut.

I call them the four horsemen of the GI apocalypse because these things, if we look at the biggest components that can impact and damage the gut, it's these four things.

Chemicals like pesticides, especially glyphosate. There are some newer research that just came out on glyphosate causing villous atrophy in the intestine. Other chemicals besides pesticides, there's heavy metals and there's petro-based chemicals that we get exposed to. There's dyes and food preservatives. There's a compound called microbial transglutaminase, meat glue, sometimes abbreviated as mtg. We know that this particular chemical actually can contribute to a leaky gut.

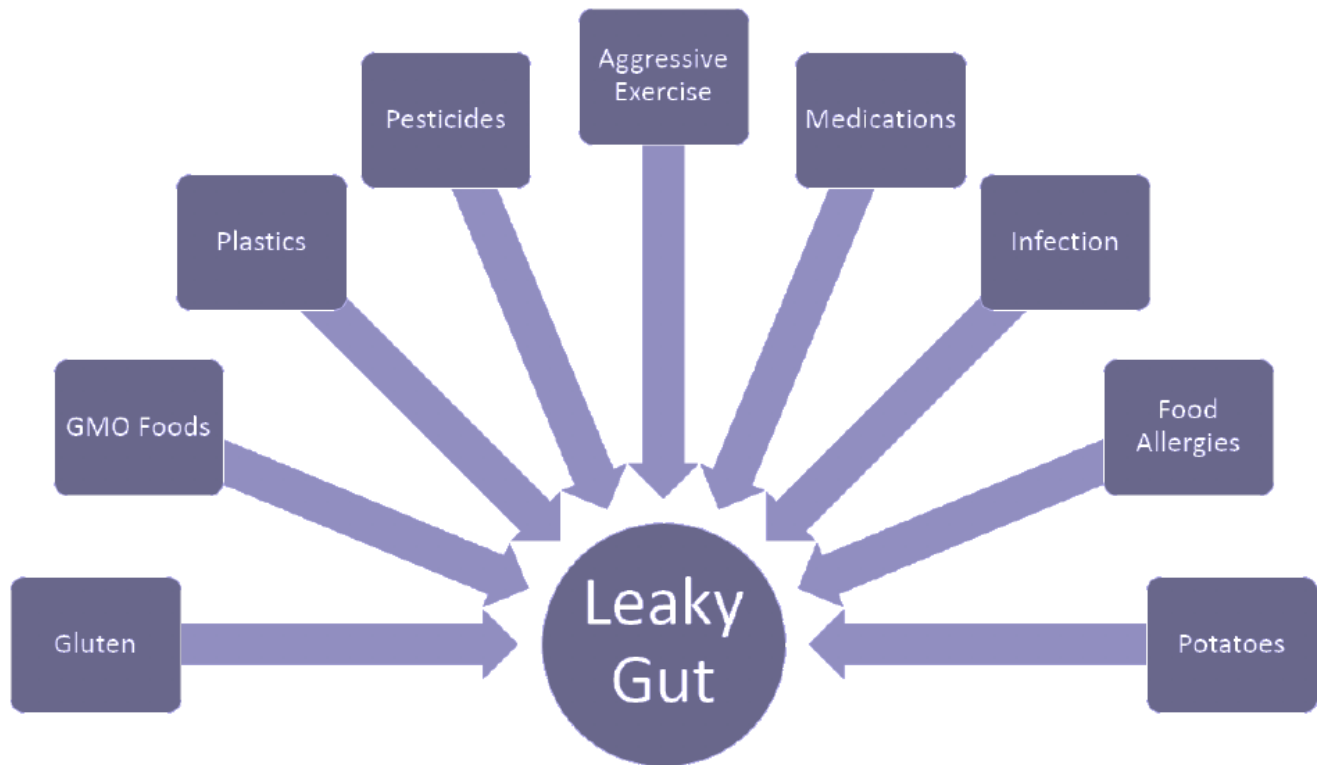
We know about gluten and we've talked about gluten. Almost every single speaker we had on the event has talked about gluten being one of the primary things to keep out of the diet to recover from autoimmune disease. One of the reasons why is the GI damage that it can induce.

Infections. This could be bacterial, viral, parasitic, yeast overgrowth. All of these types of things are known to damage the gut.

Medications. There are number of different medications that can impact and affect the gut. As a matter of fact, a few years ago, there was a study on a class of blood pressure medications that were damaging the gut so severely that the doctors actually thought the patient had celiac disease because the blood pressure medication was mimicking the same type of damage that celiac disease looks like under a microscope biopsy.

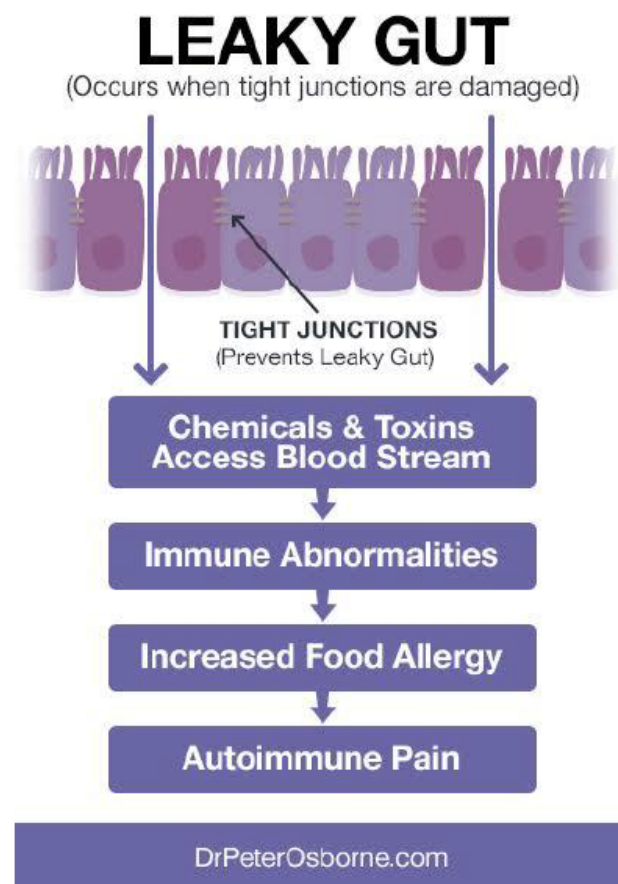


Known causes of leaky gut



If we look at known causes of leaky gut, there's gluten, there's GMO foods, there's plastics, there's pesticides, aggressive exercise. When I say aggressive exercise, perfect classic example is the person who train so hard they vomit. Their gut actually kicks in every flex of mechanism to empty its contents because aggressive exercise causes it to open up. Many medications can create a leaky gut intestinal permeability. Infection, food allergies, not just gluten, but other food allergies can do it and then potatoes. The reason I have potatoes on here because there was a compound identified in potatoes a couple years ago and a study done that was shown to actually contribute to leaky gut. Now, whether or not it does it 100% at a time and 100% of the people, we don't know, but I think it's worth note.

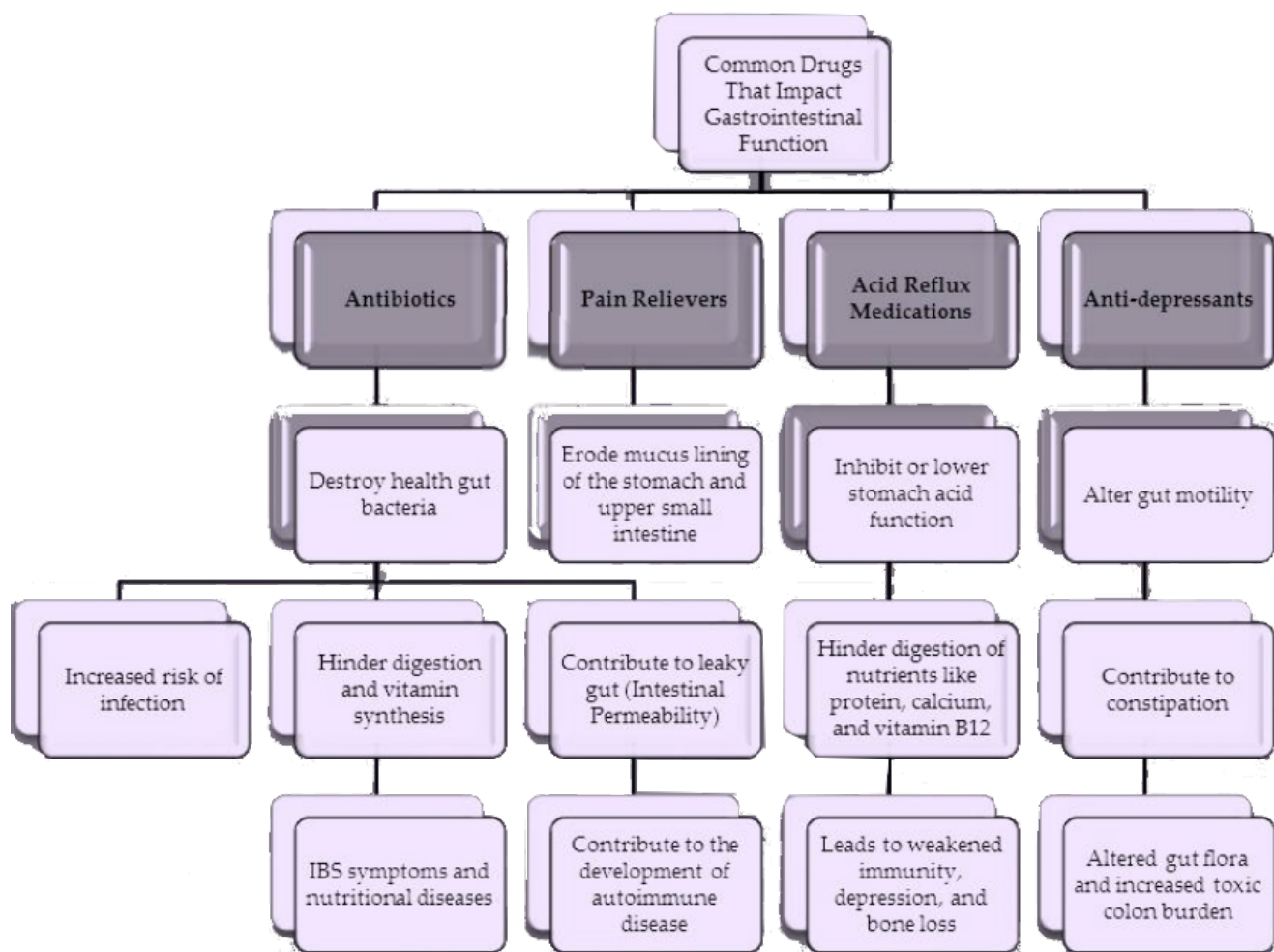
Now, there had been a couple other studies that have come out that aren't listed on this diagram and one of them is hot food and hot beverages. Scalding hot foods, foods that are too hot to consume. A lot of people eat too fast and they're eating very hot and they swallow it down because they don't want to burn their tongue, especially with beverages. If they are too hot, they can actually damage the tight junctions in the intestine and lead to some leaky gut component as well. It's important to keep that in mind. The verdict isn't 100% out on that, but it's important to keep that in mind because if you are struggling and you've done everything right, but you are drinking piping hot bone broth for example, then that maybe something that's actually contributing to a little bit of the problem.



What is leaky gut? This diagram basically breaks it down. These are gut cells. In between each gut cell, you have these little proteins that hold the cells together so that there's no space in between the cells. Leaky gut is when the space is open, when these proteins are broken down and there's room for proteins and bacteria and chemical

toxins to leak through. Remember, this up here represents the gut lumen or the tube of the GI tract and on this side is your bloodstream and your immune system. If those chemical toxins get access to your bloodstream, it can create immune abnormalities. It can cause increased food allergies. You can actually start to become allergic to more and more foods and that can contribute to latent autoimmune problems and autoimmune pain.

Action steps



Get with your doctor, print this out. These are common drugs that impact gastrointestinal health in a very big way. If you are taking any of these of medications as part of your protocol that you are already on, you want to make sure that you

understand these potential risks. Antibiotics can destroy the good bacteria that can hinder digestion. It can hinder vitamin synthesis. Know this, 60% of your vitamin K comes from the bacteria in your colon. 40% of your vitamin B8 or biotin, the hair and skin and nail vitamin comes from your bacteria in your colon and this can lead to irritable bowel like symptoms and nutritional diseases and deficiencies. It can also lead to an increase risk of infection, especially yeast overgrowth. It's extremely common to see somebody on long-term antibiotics start to develop yeast overgrowth problems. It can also increase the risk of biofilm-based infections, which we'll get into a little bit later.

Pain reliever is actually can erode the mucosal lining of the stomach and small upper intestine. It actually damages the small intestine contributing to leaky gut or intestinal permeability, which can open the gates for autoimmune disease. Long-term use of pain reliever is a bad idea. I had a patient a few years ago. They removed 18 inches of his colon because they initially had autoimmune disease called Crohn's disease. They initially had them on ibuprofen and nonsteroidal antiinflammatory to reduce his pain from the disease, but in the process of over-medicating him, they destroy his intestinal lining and ended up having to surgically remove 18 inches of it.

Acid reflux medications. They block stomach acid as I was talking about before with the five gut firewalls, hinder digestion of nutrients like protein, which is necessary for your immune function, calcium, vitamin B12. The immune system gets weaker. We can develop depression and bone loss. Then, there's anti-depressants, super common medications. These drugs because they affect serotonin and serotonin is the primary neurotransmitter in the gut. It alters gut motility and it can contribute to constipation. It can also contribute to loose bowels. It can contribute to either one. It can go back and forth, It can create IBS like symptoms, but can also lead to altered gut flora and increased toxic colon burden. Again, informed consent, get with your doctor, talk through this. Make the right decision for you.

Your home-based action steps. One of the things you can do for your gut right away if it's troubled, if it's not working, not functioning is consider intermittent fasting. I wrote in-depth about this in my book, No Grain, No Pain. If you get a copy of it, you can read more in-depth about it as well. Intermittent fasting gives your gut a break. Basically, it gives it rest. Most people are told to eat small meals every couple of hours

and their gut never gets a break. What intermittent fasting does is it allows you to give your gut a prolonged break, 12, 16, 20-hour breaks for your GI tract so that it has the ability to recover and repair and heal itself.

Avoid all grains, dairy, legumes and nightshades immediately. If you are having gut problems or autoimmune problems, there's a high likelihood that you are reacting to one several or all of these types of foods. If you want an exact protocol here, again, if you look up No Grain, No Pain, you'll find a protocol I use with many of my patients.

You want to eliminate processed and packaged food items immediately. You want to consume easy to digest foods. We talked about that a little bit before.

You want to perform controlled deep breathing before your meals and eat in a peaceful, calm place, mindful eating. If you are eating on the go, if you are eating with the news and it's very stressful, those things activate the wrong part of your nervous system. Your gut nervous system is activated when we are calm. If you are stressed out during a meal, you are not going to digest your food very well and you're going to create problems for yourself. What deep breathing does is it turns on the parasympathetic nervous system, the part of your nervous system that makes your gut work more efficiently and work more effectively.

You're going to pay attention to your gut's communication with you. Your gut talks to you. If you eat something and you feel bad after eating it, don't ignore that. That's your gut's way of saying, "Stop eating these things."

Maintain adequate water intake. A lot of constipation is caused because of water deficiency. Maintaining adequate water is going to help keep your bowels flowing, which brings us to the next point.

Keep the bowels moving naturally as much as possible, again, if necessary. I like to move the bowels with food and fiber. I like to move the bowels with the appropriate food. As opposed to using a bunch of alternative or chemical peels, we want to look to move the bowels as naturally with food as we possibly can.

The two best ways without any supplements to move your bowels are with exercise to moderation to the ability of your capacity to do so and maintaining whole

natural foods. No processed foods. Beyond that, if you are still struggling, if you are already doing those things, high dose probiotics at least 100 billion a day, magnesium 600 to 1,000 mg a day, high doses of vitamin C five or more grams a day. These things help with bowel movements naturally, but they can also help aid and support the healing process.

Digestive enzymes. Sometimes, people's guts are so damaged that they don't make adequate enzymes to break the food down and the food putrefies in the gut, it rots. That in and of itself can lead to constipation and motility issues. Sometimes, digestive enzymes can be very helpful.

Some people do well with apple cider vinegar as a source of acid if their stomach has been damaged and they're not producing enough acid. This can be a very easy natural safe effective way to improve your digestion by increasing the acidity in your stomach to help you breakdown food. Then, acid and bile supplements. Betaine hydrochloride is an example here. Ox bile supplements might be an example here of supplements that can be used to help and aid in digestion and keeping the bowels moving naturally. Of course, there are other things.

Some people use different types of herbals to get a regular bowel movement. I don't recommend those, those herbals like that like senna and cascara. These things irritate the bowel lining. They don't solve the problem. They irritate the lining of the bowel to induce the movement. Some people use caffeine. Caffeine is a gastric irritant. It causes a bowel movement through irritation. Try to avoid things that irritate the bowel in order to have a bowel movement. Try to go more toward the side of natural. If you are still struggling, there are something deeper wrong. You can take home-based action steps, but if it's not correct then you've got to get with somebody, a functional medical doctor who is going to be able to help guide you and take out the guesswork.

The other thing you want to do is pay very close attention to foods that are high in FODMAPS, fructo, oligo, di, mono, and poly saccharides as well as histamines. These foods can sometimes impact the gut. Sometimes people don't make enough digestive enzymes and have a really hard time digesting these foods and they can cause a lot of gastric bloating and gastric pain and intestinal discomfort. You don't necessarily have to

avoid them all, but pay attention to them. Look at the list. We have list. I have a list of these foods on my website at drpeterosborne.com. You can tap into those. Print them out. Use them, but again, pay attention to them because they may be part of the problem that you are experiencing.

Be cautious of supplements containing GMO or other taboo ingredients. One of the most common things I see is supplements that contain grain-based fillers. If somebody is gluten sensitive and they're on a gluten-free and a grain-free diet and maybe the supplement they are using has a rice-based filler and they're having a heck of a problem. They are thinking that they are taking a supplement that's doing the right thing for them. You've got to be cautious. Read your labels. The taboo ingredients won't serve you. Non-GMO supplements only and no artificial or grain-based fillers that are going to contribute to a detriment to your gut.

Have functional GI testing performed. Functional GI testing is very, very in-depth and can tell you a lot about what's going on in your gut including whether or not there's an infection or bacterial imbalance. We can look for yeast and bacteria and parasites and viruses. We can look for something called SIBO, which stands for Small Intestinal Bacterial Overgrowth. We can look for something called biofilms. These are bacteria that have antibiotic resistance. If you've got a really strong history of taking lots of antibiotics, you might have an infections in your gut or your cavities, your sinus cavities that are what we call biofilm producing microorganisms. They are resistant to antibiotics. Antibiotics don't work for them. If you've been on a lot of antibiotics, a lot of times what happens to people with chronic antibiotic use is the bacteria in them develop resistance to antibiotics. The resistance they develop is the ability to secrete a biofilm. Biofilm is like a protective dome that protects the microorganism from the antibiotic and from your immune system.

A lot of research is pointing toward the fact that biofilms exist largely because of abuse of antibiotics. These were all things that can be tested for, that can be looked at. If you are working with a functional medicine doctor who is up to speed, they're going to be able to do these things.

You want testing that can assess the microbiome. What kind of good bacteria do you have? Do you have enough? Do you not have enough? Is the diversity high enough within your gut?

You want to have somebody assess the production of acid and digestive enzymes and short-chain fatty acids. These are gut fuel sources and IgA, something called secretory IgA, which is secreted by your gut. This is the first line of defense. Protein, I talked about earlier, it's one of the firewalls in the gut. It's one of the big immune protectors of your gut.

You want to have somebody assess GI inflammatory markers. If your gut is on fire, we've got to put the fire out. You may have more than one problem. Everybody is entitled to more than one problem. Sometimes, the gut is on fire and it's leaking and you have an infection and you have vitamin and mineral deficiencies. All those things are going on simultaneously. There's no order of things. There's no order of how we have to put these things back together and how we have to create a protocol around the patient to ensure a prominent outcome for them. Assessing these things with a functional medicine doctor can be very, very helpful. Depending on the extent of damage, you may need a supplement source of immunoglobulins.

A lot of products that are out there contain colostrum because it's high in natural immunoglobulins. The problem with some of these supplements is some people are ultra sensitive to dairy and if they are, these colostrum-based supplements can become problematic. In which case, in this scenario, you want to have a serum derived, the blood derived source of immunoglobulins. We actually have a formula that works really well for that. If you need more information about it, you can visit glutenfreesociety.org.

Assess nutrients. The gut will never heal if you are deficient in vitamin A and I know we talked about nutrients earlier, but this is what I was talking about before about piecemealing. If somebody assesses your gut, but doesn't assess your nutritional status, you're going to have a problem because if your gut is broken and you don't know why, one of the reasons that gut will breakdown is vitamin A deficiency. Vitamin A works like a hormone on the gut cells to help them regenerate. Your gut has a life cycle. The cells have a life cycle of two to seven days and they don't replicate fast enough to repair fast

enough or to regrow fast enough without vitamin A. If your vitamin A levels are low, you're going to have a heck of a time getting your gut to ever make a recovery.

Glutamine. If you don't have adequate glutamine, this can be measured, then your gut won't heal. If you don't have adequate vitamin C, there's a recent study done on vitamin C in celiac patients, how they won't heal without adequate quantities of vitamin C because it's necessary to heal gut cells. Zinc is necessary to make digestive enzymes. Your gut cells use zinc to produce antibodies to protect from infections. B12 and folate, these two nutrients are extremely critical for gut function because they are responsible for your DNA and RNA replication. Your gut cells turnover faster than any other cell in the body. They turn over every two days or so.

They make a lot of DNA for that turnover and make that DNA. They require a lot of B12 and folate. That's why patients going through cancer treatment and a lot of your cancer treatments destroy B12 and folate or block B12 and folate and that's why a lot of cancer patients have a lot of gastric symptoms. They have a lot of intestinal symptoms because they are blocking B12 and folate because the chemo is wreaking the gut already. Not only they are blocking the nutrients necessary to replicate new cells in the gut, but the chemo is actually causing damage to the gut cells.


Again, these nutrients and other should be assessed if we are going to have a meaningful impact on gut function if the gut is broken. Remember this, about 40 to 50% of the nutrients that your gut uses to heal, repair, and maintain itself come directly from what you put in your mouth, not from the bloodstream. Half of the nutrients that the gut uses to heal and repair and maintain itself come from what you put in your mouth. A lot of people ask the question, "I'm malabsorbing, so taking supplements won't really work." It will work and it will especially work for your gut because half of the nutrients for your gut come from what you put in your mouth, so remember that. Sometimes you've got to put things in your mouth. You've got to supplement to get high enough doses so that your gut will heal and working with a qualified functional medicine doctor is going to help you with that process.

Moving on to the next part of the matrix. We are talking now about still on the chemistry category. We are talking about gluten sensitivity and food and other chemical allergies.

Gluten sensitivity and other chemical allergies.

Gluten, every autoimmune expert in the summit has agreed. Gluten is a problem in autoimmune disease. It was the first medically proven cause of autoimmunity back in 1952. We can think pediatrician Dr. Willem Dicke for discovering this. All grains contains some form of gluten. Now, I know there's a lot of confusion on this issue. There's no such thing as gluten-free grain, but we want to understand how the FDA defines gluten. The DFA defines gluten not as gluten, but as something else. There's a protein found in wheat, barley and rye called alpha gliadin. Alpha gliadin is one type of gluten and it is the type the FDA recognizes. When they pass their food labeling law whether you could call something gluten-free or not, if a food is alpha gliadin free, they can call that food gluten-free even though technically it still might contain other forms of glutes.

The Prolamine Fraction of Proteins in Grains		
Grain	Prolamine	% Total Protein
Wheat	Gliadin	69
Rye	Secalinin	30-50
Oats	Avenin	12-16
Barley	Hordein	46-52
Millet	Panicin	40
Corn	Zein	55
Rice	Orzenin	5
Sorghum	Kafirin	52
Teff	Penniseiten	11

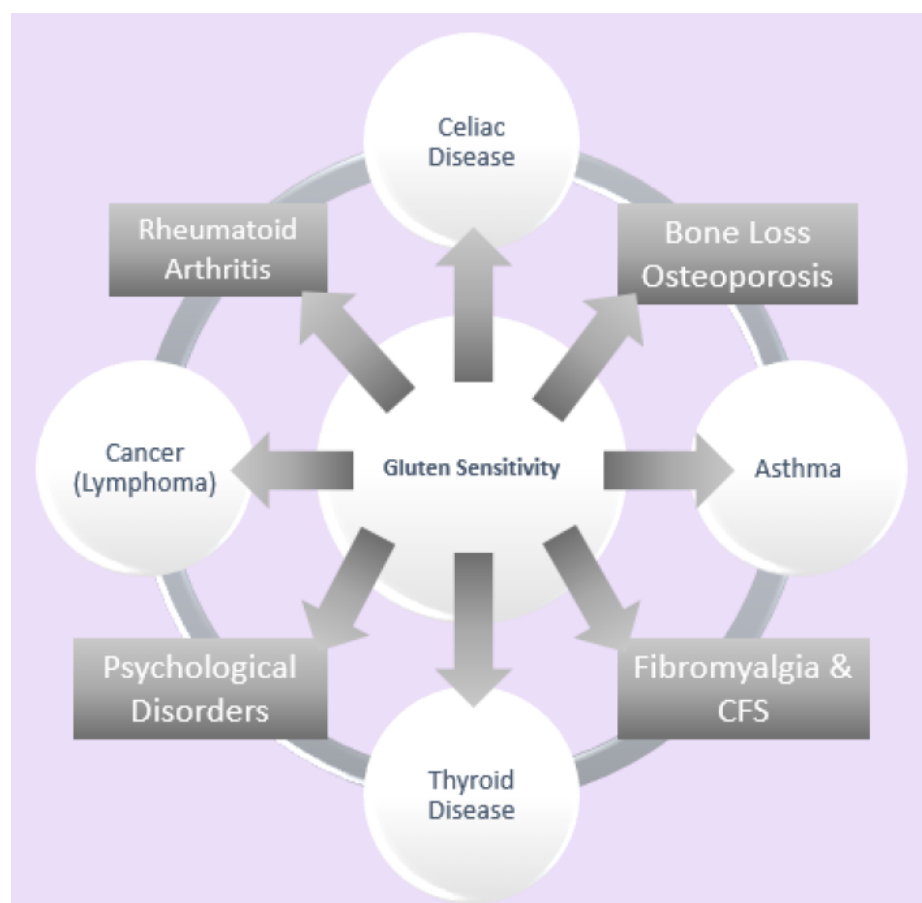


This diagram over here gives you some examples of different types of glutens found in different grains and a number over here gives you an example of the concentration of gluten or the percent total protein of that type of gluten found within that grain. For example, wheat, one of the gluten is called gliadin or alpha gliadin, 69% of the total protein in wheat is alpha gliadin. That's why so many people who go wheat, barley and rye free feels so much better. They're removing some of the grains that contain the greatest quantities of glutens. We look at rice though, rice has a lower quantity of gluten, but it's still has orzenin, a form of gluten in it. Keep that in mind. You may have already gone traditional gluten-free, wheat, barley and rye free, but you haven't gone grain-free and this maybe a big part of your struggle.

I wrote all about the research in science on this. This is why I've wrote No Grain, No Pain. Check that out. You can also check out I have a video on this on glutenfreesociety.org. There's a video at the top of the page that says, "Gluten Sensitivity. What is it?" It's a 40-minute video going through the science behind what gluten actually is. Testing antibodies to gluten is very misleading and the reason why, if we are testing antibodies to gluten, we are only testing a handful of antibodies to a handful of glutens. There are about a thousand different forms of gluten that have been identified to date. As a matter of fact, in 2010, 400 new forms of gluten were identified by Australian researchers and 40 of these 400 forms were more toxic than the gliadin that most doctors test for.

If the doctor is testing antibodies to gluten in the form of using anti-gliadin antibody testing, they're going to miss the mark. They're not going to be as accurate. They're not going to be as comprehensive. I want you to understand that gluten sensitivity is not a disease. It's a genetic predisposition. One of the best ways to test for gluten problems is to run genetic testing. We'll talk a little bit more about that in a moment. I want you to understand antibody test often times there's a high degree of false negatives with antibody testing. There's no available test that measures all of the known forms of gluten and that's one of the other problems with antibody testing.

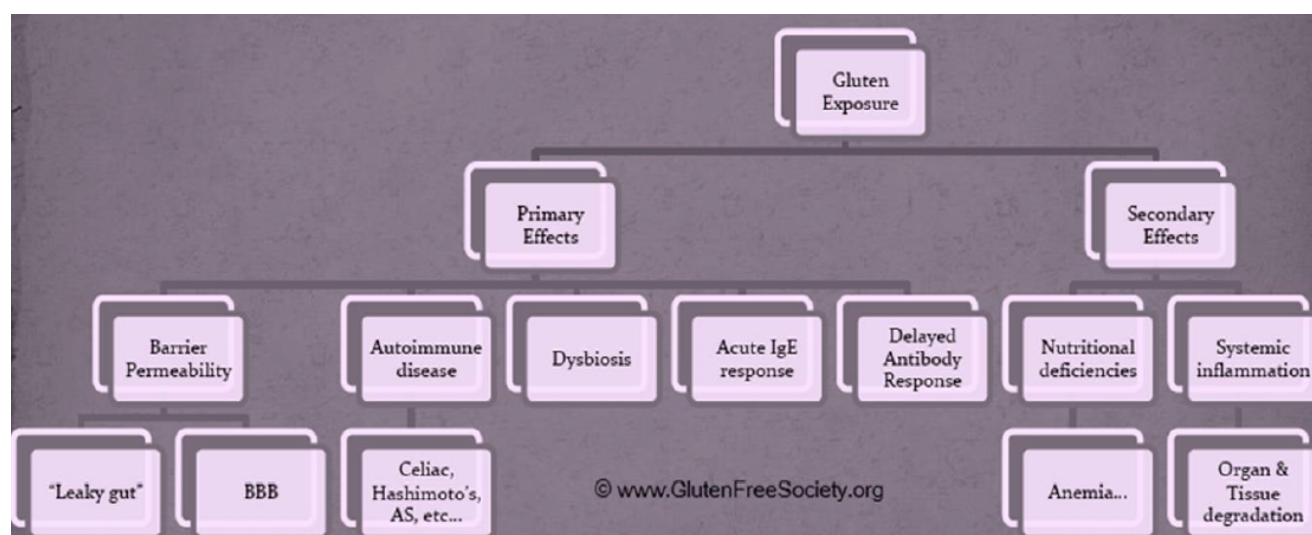
Let's take a deeper look at gluten sensitivity. I said before, gluten sensitivity is not a disease. It's a state of genetics, but the problem with it is if you have gluten sensitive genes and you expose those genes to gluten, then those genes are going to amount in immune response. They're going to create antibodies, but some of them don't create antibodies. Some people create inflammatory chemicals like tumor necrosis factor alpha or interferon gamma. Gluten sensitivity, in a nutshell, it creates for people with the genes. It creates an inflammation that contributes to autoimmune diseases and other forms of chronic degenerative diseases. This diagram, I just want you to understand the hub is gluten sensitivity, which is genetic.



If you have gluten sensitive genes and you eat it anyway, you're going to have a high propensity or a higher likelihood to develop some of these different types of medical conditions. Rheumatoid arthritis, autoimmune disease, right? Celiac disease, autoimmune disease. Bone loss, osteoporosis has now been identified as a form of

autoimmune disease, not a calcium deficiency. Asthma is a form of autoimmunity. Fibromyalgia can be a form of autoimmunity. Hashimoto's thyroid disease or Graves' disease. Psychological disorders, things like bipolar disease and schizophrenia have an autoimmune component. Cancers and lymphomas, directly linked and correlated to gluten sensitivity. I want you to understand gluten can cause a lot of problems depending on the person.

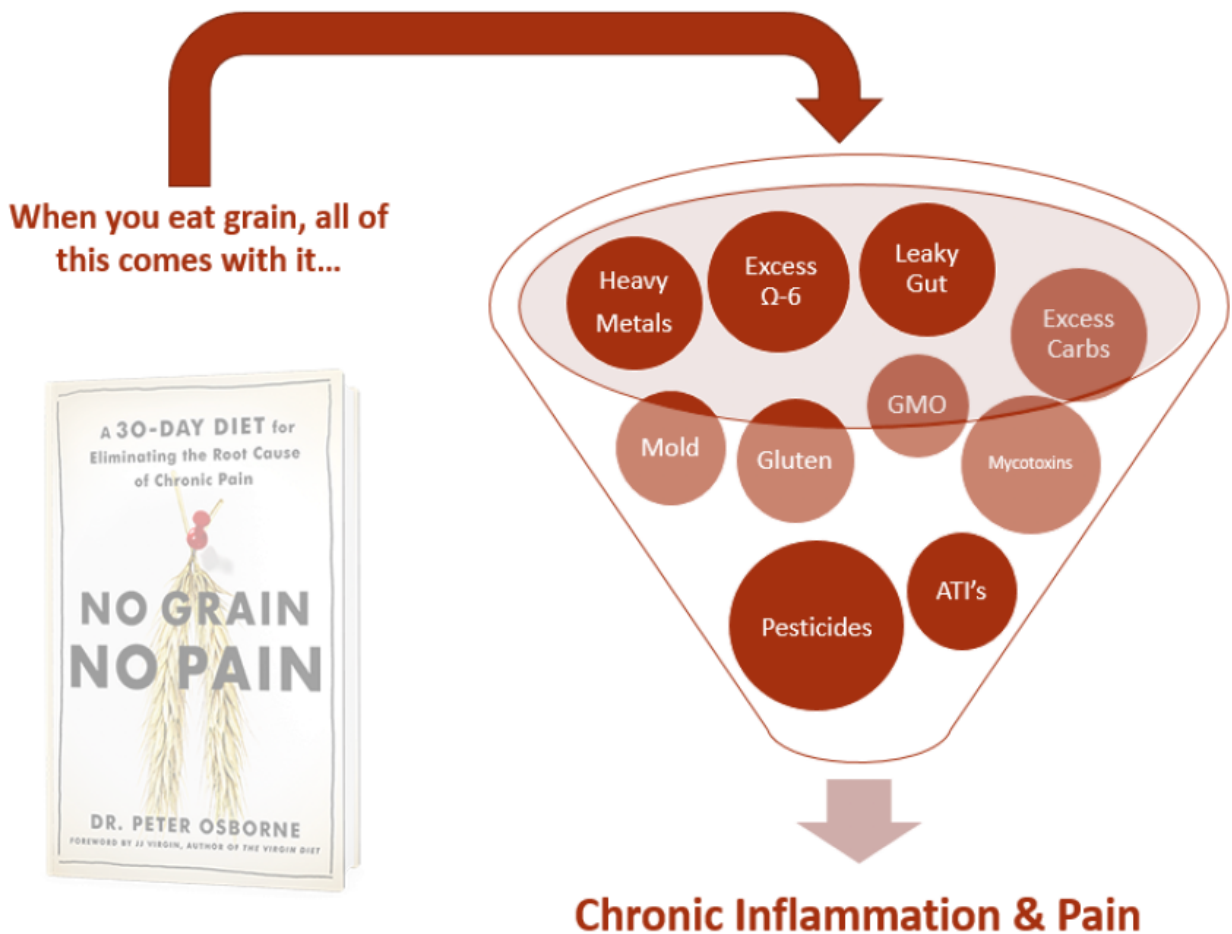
Let me give you an analogy. If we gave a thousand people aspirin, we might see some of those people develop a gastric ulcer. We might see some of those people's headache go away. We might see some of those people not have any symptoms or any untoward problems, but my point is we are giving those people all the exact same chemical like aspirin, but they are having different responses. That's a lot the way gluten proteins work. We can give all these people gluten proteins. If they are gluten sensitive, they may not all react identically. You don't have to have celiac disease to be gluten sensitive and that's why that term in medical literature, non-celiac gluten sensitivity, even exist.



Here are just some examples of primary and secondary effects of gluten exposure. As you follow the diagram down, primary effects, gluten has been shown to

cause barrier permeability, meaning leaky gut, but also in the blood brain barrier. The BBB stands for blood brain barrier. Gluten we know can trigger autoimmune disease. Celiac disease is a classic example, but also Hashimoto's and ankylosing spondylitis. There are a lot of different examples that's linked to type 1 diabetes. Gluten exposure can cause dysbiosis, changes in the bacteria that live in your intestine. Again, these are all primary effects.

Some people aren't necessarily gluten sensitive, but they're allergic. The sensitivity and allergy aren't quite the same thing, but they are acutely allergic to the wheat proteins. There are a number of different proteins in wheat that people can be allergic to, but there are also proteins in other grains that people can be allergic to. There's an acute response, a more obvious response. Some people have delayed responses where their response is not quite so obvious. We'll get into this here shortly.



Then, there are secondary effects. If all of these things are happening, because the gut is damaged, we can end up with nutritional deficiencies, which can lead to anemia, which can lead to fatigue, which can lead to inability to heal, repair, and recover. We can create systemic inflammation that causes damage to our organs and tissues and leads to further disease and secondary disease. Again, gluten can do a whole lot depending on the person, depending on the extent and the length of exposure, but let's go beyond gluten. A lot of people are coming out now and saying, "Really, it's not gluten. It's not quite that bad," is what we thought. It is and it depends on who the person is. That's why genetic testing is important to identify so that we are not guessing about whether going gluten-free is the right diet.

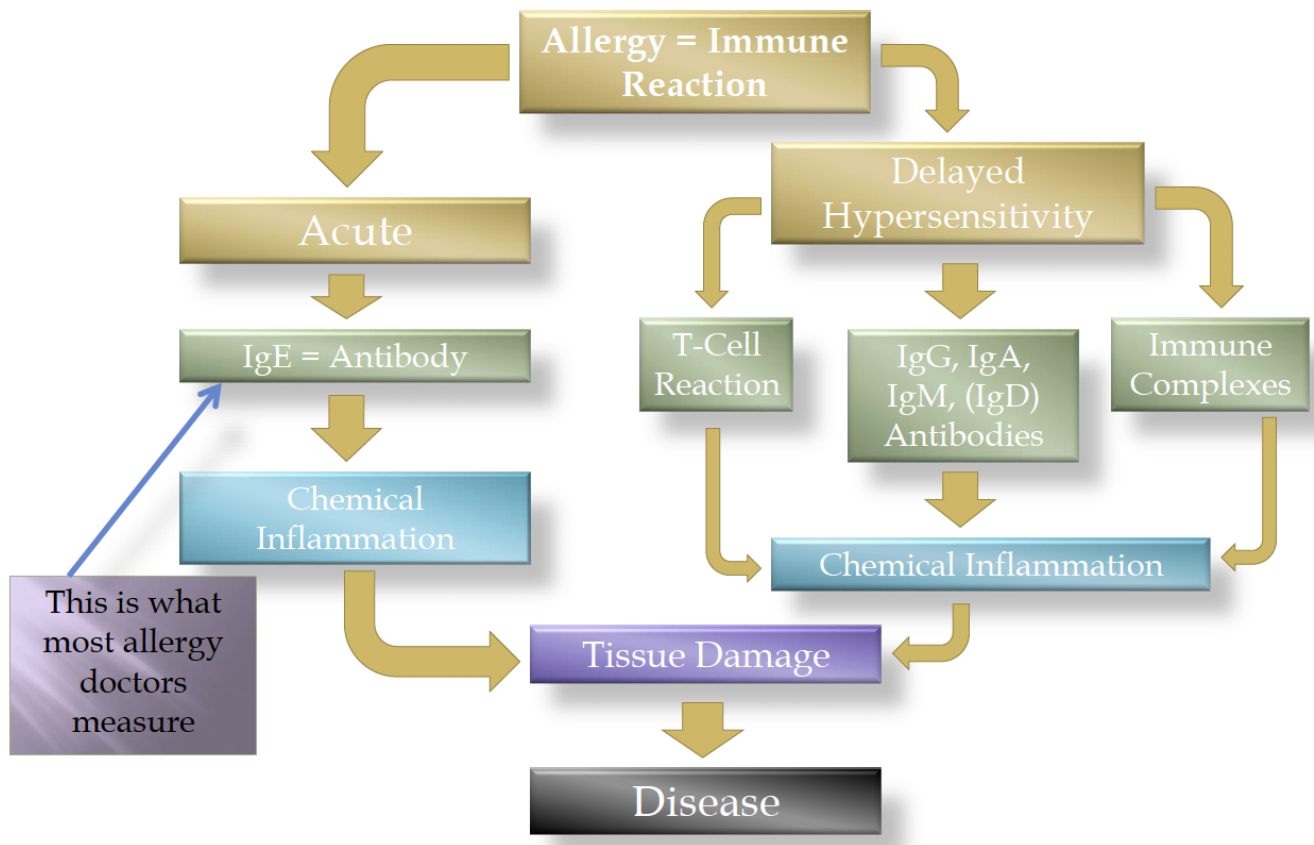
There are other things in grain that are detrimental and can be detrimental, especially when we look at the quantity of grain people eat. Some grains contain heavy metals like rice, high in cadmium and arsenic. Corn syrups have been shown to contain mercury. Grains contain excessive omega-6, which imbalances our inflammation. It causes us to produce excessive inflammation. Components in grain that are non-glutens. There's a chemical protein called amylase trypsin inhibitors or ATIs that we know can cause leaky gut and gut inflammation. Grains contain excessive carbs that will drive up your cortisol, drive up your insulin creating hormonal imbalance. Many grains are genetically modified. The fact that they are GMO can create damage in the GI tract, but they also contain the pesticides. A lot of the GMO grown grains are also grown with heavy pesticides, which can damage the gut. Grains are often times contaminated with high levels of mold. Some people are reactive to mold. Mold can produce mold toxins, also known as mycotoxins. In some cases, a person is not allergic to mold, but they are allergic to the byproduct of mold, which is mycotoxins. These things are very high in grains. Again, all of these different items can be found in grain. All of these different items can damage the gut, can lead to chronic inflammation, chronic pain, contribute to autoimmune disease. Of all of these things, only one of them is gluten. I want you to think beyond gluten in the sense and we want to go to grains as a food. How healthy are they if they are contributing all of these things to our diet to our body?

Allergies.

Let's talk a little bit about allergies. We can have allergies to foods. We can have allergies. When I say foods, I mean strawberries or beef. I've got patients that have had broccoli allergies, that have had rosemary allergies. If you are an essential oils use. Generally, essential oils are very safe and very effective, but what if you are allergic to lemon? What if you are allergic to rosemary or thyme and you are using those essential oils? You are not recovering and you are not getting better and you are wondering why. This is the example. You can be allergic to food components. Having these things looked at can sometimes be a very, very big important step in your recovery. Then, there's also chemicals, food additives, pesticides, preservatives, dyes, petro-based chemicals, petroleum, things like xylene and toluene and benzene. Then, there's environmental molds. Some people are allergic to molds and some people have metal responses or metal reactions, heavy metals like mercury, lead or cadmium or arsenic.

Some people are allergic to the compounds found in the medicines that they are being prescribed. I get this all the time. Patients on thyroid medication who have grain sensitivities and one of the more common thyroid medications contains a heavy dose of corn. These patients aren't getting better and their medicines aren't really helping them because they are being poisoned by the same medicines supposed to be treating them. Compounds in medicines, but also dental implants or amalgams or other surgical implants.

I've had patients that had to have breast augmentation surgeries reversed. I've had people that were allergic to the materials and the mesh that was implanted to fix a hernia. I've had people who had hip replacements, who are allergic to the prosthesis itself. These are all possibilities in the realm of autoimmune contribution. You just want to be aware. For example, if you are going in and let's say you're going to have a hip replacement. You need to have a conversation with your orthopedic surgeon about testing you to make sure you are not allergic to the materials in that replacement before they put it in your body, before it creates a problem. Prevention is the key here.



This diagram represents what an allergy actually is. An allergy is an immune reaction and we can divide allergies into basically two categories: acute allergies and delayed hypersensitivity allergies. Now, acute allergies are formed as a result of IgE production and this is commonly what doctors will measure. If you go to an allergy doctor, they're going to either do a skin prick test or blood test or a patch test and what they are measuring is IgE response. IgE is an acute response, meaning that the window of response is generally immediate up to about three hours and the outcome is chemical inflammation that is more obvious than a delayed response, but that chemical inflammation can damage tissue and contribute to disease.

This next section on delayed hypersensitivity. If you've ever had food allergy testing done, what a lot of doctors do is they do something called subtype IgG4 testing. They'll maybe measure a handful of different things, maybe 70 or 100 different types of food that you could potentially be allergic to, but they're only measuring IgG. Now, some

labs also measure IgA and IgM, which is good. It's a step above. It's a cut above the average lab, but understand that there's IgG, there's IgA, there's IgM, there's T cell responses, there's immune complex reactions. These are all types of delayed hypersensitivity responses by your immune system.

If we are not measuring them all, we can get back a picture. The picture we get back maybe only a partial picture. Again, I see a lot of patients struggling. They've already had a doctor measure their allergies, but the way it was measured was limited. It was not comprehensive enough and they didn't get a full picture of everything they were allergic to. It's important that we take into consideration all of these items, not just in part. Again, these delayed responses can still lead to chemical inflammation tissue damage and disease.

Let's talk about symptoms here, acute and subacute allergy responses. Again, I'm going to go back up. We are talking about acute. If we are classifying what types of symptoms, we might find somebody have who is having an acute reaction. A lot of people will say, "If I'm having an acute reaction, I need to know about it. I'm going to break out in hives. I'll have anaphylactic shock." The classic peanut allergy, the classic shellfish allergy. Your lips swell. Your face swells. Your eyelids swell shut. Your throat constricts. You are in the hospital. They need to put an EpiPen in you to get you to stay alive. That's obvious highly acute reactions, but there are less more subacute types of allergy responses: coughing, wheezing, sneezing, asthma-like symptoms, runny nose. A lot of people think they are having a chronic upper respiratory infection and they're not. The doctor just says, "Oh, it looks like a respiratory infection, but here, let's give you an antibiotic," but it isn't an infection at all. It's subacute allergy responses.

Excessive mucus production. If you've ever eaten a meal and found yourself having to clear your throat repetitively, that can be a symptom of subacute allergy response. Watery itchy eyes, elevated pulse. Just checking your pulse sometimes we'll see acute allergy responses just raise the pulse because they raise adrenalin in the bloodstream. They'll raise your pulse, increase your blood pressure. Sometimes, they'll cause erratic mood change, especially in kids, we'll see this with food dyes, hyperexcitabilities will occur. These are acute and subacute types of responses.

Another reaction that we'll see, you can do this at home and shine a flashlight in your mouth and say ah really big if you have tonsils. If you don't have tonsils, you won't see this, but if you still got your tonsils, see the back of this tonsil here you can see this two white patches. Basically, that's pus particulate build up. Those are called tonsil stones and that's a sign of food allergy. That's a sign your immune system is chronically putting immune cells into the mouth, into the tonsil area to protect you from what you are eating. This is a very common symptoms associated with food allergy. Open up and say ah and look into mirror with a flashlight and if you've got tonsil stones, you may be reacting to something and not know it yet. You need to go have a talk with your doctor to get it tested.

Hidden immune burdens or hidden or delayed hypersensitivity types of allergies. The window is a lot longer and it's a lot harder to identify. It's a three-hour to three-week window after exposure. Now, elimination diets are fine. A lot of people do elimination diets and they figure some really good things out, but elimination diets are not going to help you find hidden delayed hypersensitivity responses because sometimes these symptoms aren't even noticeable. They just are underlying inflammation that is perpetuating an underlying disease process. Again, if you struggling, if you plateaued with autoimmune disease and you've done everything you know to do, you've got to have delayed hypersensitivity allergens looked at. If you've done an elimination diet and you are still struggling, this is very, very frequently why that happens.

Let's talk about action steps.

Read No Grain, No Pain and apply the 30-day diet plan immediately. This is going to eliminate a vast majority of the chemicals and most common autoimmune allergens that I've seen with patients in 16 years. If you are not visiting with a doctor, you can apply this diet. If you are visiting with a doctor, it gets a lot more specific than this.

You can perform a food elimination diet.

You can eliminate as many toxic exposures from your environment as possible: pesticides, cleaning products. Be aware that chemicals come from vaccine exposure. One of the types of patients in my opinion should not do vaccines are people with autoimmune disease. These are the people that are at most susceptible to the vaccine

injury aspect of vaccines. Vaccines, remember, many of them contain aluminum, mercury, GMO corn sugar additives and formaldehydes and other chemicals.

Begin reading all food and other household labels. Know what you are putting in and on your body and pay attention to how you feel after eating.

Pay attention to how you feel. If you get out of the shower and your skin is super dry and flaking off, maybe you are allergic to some of the chemicals in your soaps. Maybe you are allergic to your shampoo. Pay attention to these things, cosmetics, perfumes, toothpaste, mouthwash. This can all be problematic and if you haven't started to look in those angles and you are still struggling, this could be a major, major needle mover for you and your autoimmune condition.

Inspect your home for visible signs of mold. People can be allergic to mold. They can be allergic to the mycotoxins. If you've got obvious mold, black, brown, green growing in your air vents or ducts, visible shower grout mold. If you've got water damage or leaking roof or your house smells musty or moldy or there's a wet damp spot in your closet behind your shower, whatever the case might be, these are signs of mold. You need to have that remediated. You need to get it out at your house because it could very well be a major problem for you.

When I talked with Dave Asprey, we had a conversation about mold and one of the things that he mentioned was ERMI testing. ERMI stands for Environmental Relativity Mold Index. It's a type of testing that can be done that helps you identify whether your house has high levels of molds. This is also another thing you can do. You can get it online and order one of these tests. You don't need a doctor to do that. You can check your home, make sure that mold is not playing a part of your issue. Then, also, installing air and water filtration devices. There's 42 prescription medications where I live in the drinking water in Houston area. Study recently done found 42 scripts in the drinking water. You want to filter your water. There had been a number of places across the country where now they are finding because they are looking they are finding high levels of lead in the water. There are places where water is fluoridated on purpose. I know it sounds crazy, but fluoridation in the water can be a bad idea if you've got autoimmune disease.

Filtration becomes potentially necessary for you and that includes the air because the air can be a harbinger of molds force. The air can be a harbinger of bromine and other types of chemicals that are sprayed on carpets and furniture, upholstery, etc. You want to clean that stuff out of your home. Some options on air and water filtration and, get with a good reputable company you can trust. We have a resource page on drpeterosborne.com. You can check them out. We've vetted a lot of people who do this type of thing. The key is getting with somebody you can trust, somebody that you can hold accountable because there are a lot of different options in air and water filtration. UV light, HEPA, carbon, ozone, ionization are all good mediums, although some people are overly sensitive to ozone and so don't respond well to it. Keep that in mind.

Water filtration. I like whole house water filters because it filters your toothbrush water. It filters your cooking water. It filters your shower and your bathing water. It filters everything, your dish water, what you wash your clothes in. Again, a lot of people don't consider those other sources where they're using water in their home as being potentially toxic sources. Whole house is definitely best. Now, if you live in a condo or an apartment, you can't get a whole house filter. Consider an under mount sink filter, consider a shower head filter for your showers when you are bathing.

A lot of people ask the question about reverse osmosis. Doesn't it pull minerals out of the water? Yes, it can. Can you add minerals back into the water? Yes, there are remineralizers that you can buy if you filter with reverse osmosis. Also, you can buy natural mineral supplements that you can put into your water if you are doing reverse osmosis water if you are worried about that element, but nothing pulls fluoride like reverse osmosis. As a matter of fact, this type of filter is the most potent type of filter for chemicals and drugs and other agents that carbon ... GAC stands for granular activated carbon and KDF as a zinc and copper alloy that filters a number of things out of the water, but nothing works better than reverse osmosis. It's something that I highly recommend that you investigate and get put in place to minimize your exposure to things you are potentially allergic to or having toxic reactions too.

Think about it like this, toxic compounding. This is a major factor in autoimmune disease.

Four billion prescription drugs are ingested in the US each year.

70,000 chemicals are used commercially.

3,000 and more are added to our food supply.

10,000 chemicals are used in food processing, preserving and storage.

The EPA estimates that our homes are now five to 100 times more toxic than outdoor air because of the tighter seals and the energy efficiency. In this case, open your doors, open your windows. Let your home air out. We are going to be exposed to these things.

We are not going to be exposed to these things. We want to position our body to handle it better and this is why we filter. This is why we avoid processing. This is why we do the things we can.

In most cases autoimmunity is caused by accumulated and synergistic harmful compounds. The degree of a persons symptom severity is largely dependent upon their unique environmental actions and to a smaller extent genetic predispositions.



In most cases, autoimmunity is caused by accumulation and a synergistic harmful compounds within the environment. The degree of a person's symptoms severity can be dependent upon their unique environmental actions combined with their exposures and combined to the smaller extent with their genetic predispositions. If you think of your ability to handle disease or your resiliency or your adaptability to the environment. Think of this, this bucket. If you fill it with polluted air and water and vaccine, chemicals, and heavy metals and toxic chemicals from your home and toxic food and then when you get really sick because you've done all of these things, the doctor then gives you medicines. It's at this point your bucket overflows and it's this point where now you are struggling to find answers and solutions. If we can eliminate and avoid as much of this as intelligently possible and then get specific about what's unique about ourselves by working with the functional medicine doctor, we are going to increase the odds that our outcome of autoimmune recovery is going to be successful.

Action steps.

Working with a functional medicine doctor.

HLA-DQ testing is the gold standard for identification of gluten sensitivity gene patterns. I want to be clear here. HLA-DQ allele testing because there are some labs that will run what's called HLA-DQ2 and 8 genotyping and it's not the same thing as running the full allele. Many people are gluten sensitive who do not have the DQ2 or the DQ8 patterns. They have different genetic patterns. If you are only doing a test that only looks for and tries to identify DQ2 or DQ8, you could miss the boat on gluten sensitivity gene testing.

Test your blood for acute allergies

Test your immune system for delayed allergies. In essence, get with the doctor who is experienced in this area and knows the right types of test to run because there's multiple types of test. It's not one lab. It is multiple types of labs to identify all those things we just talked about.

Once testing is performed, work to remove all the exposures so that we reduce the immune burden and allow for your body to make a recovery. Of note, if mold is an issue, you want to consider the source. I say this as a note so talk to your doctor about the potential for this to be in your case, but mold can come from an external environmental source like your home or your car, but mold can also come from inside you. If you have a biofilm-based mold infection, it could be living inside of you producing mycotoxins. A perfect example of this is candida.

There are other forms of yeast beyond candida that can do this like *Geotrichum* is another species of mold. If you've got mold living inside of you like a yeast infection, realize that you could be reacting to the yeast infection for more than one reason and one is because you are allergic to the chemicals that yeast is making. Another is that you are having an immune response to try to win the war against the yeast and another is that you are allergic to the yeast itself. Again, a good functional medicine doctor knows these things, work through the details of that. Again, you've got to consider all of these things as you move forward.

Moving on in the matrix. We are still at chemistry. In this case, it's toxic metal time, toxic metals. Let's move on. I'm not going to talk about every single toxic metal. Lead, mercury, cadmium, arsenic. Those are heavy metals. These are very dangerous. These can cause and had been shown to contribute to autoimmunity. Fluoride, bromine, and chlorine. These are what are called halides and these aren't heavy metals, but these are elements that can be very, very toxic and we are exposed to them in very large ways. This also can contribute to autoimmune disease. I thought they were worth mentioning because a lot of people leave these three out.

Toxic metals can compete with and displace minerals from binding sites and tissue. For example, let's say, you have a lead toxicity, let's say the lead and the calcium. You are eating enough calcium, but the lead toxicity is displacing calcium. In essence, the lead is taking the place of the binding in receptor sites where calcium would fit and so then you are getting lead instead of calcium. Lead and calcium don't work the same. If you are getting lead in your bone, your bone will become more brittle and it will become more osteoporotic because of lead displacing calcium from your bone. Lead can also displace calcium from hormone receptors on the surface of your cells and it

can start to interfere with estrogen and progesterone and testosterone and insulin receptors. These toxic metals, they compete with healthy metals like calcium, like magnesium, like zinc, and selenium that have so many different functions within the body. We could see a lot of things go wrong with toxic metal exposures and it can get very confusing, which is why we want to identify them, not guess whether or not we have them.

Lead exposure can come from toys produced, especially in China. We've had several recalls on this.

They can be found in lipsticks and persona care products. Again, we've had recalls on these and a lot of these was China based products.

Lead has been found through city waters in North America. Some municipal water supplies across the country are identifying lead as a potential threat.

There are several potential additional sources for manufacturing, painted dishes, canned foods, imported candies, all potential possibilities.

Air and water exposure. If you live in an industrialized area, this is very common to see lead exposure in those areas.

Bodily accumulation. The problem with lead is most people don't have an acute toxicity, so they didn't get lead poisoning. They didn't get exposure to so much lead that they are violently sick right away where you could identify. They are being slowly poisoned by lead. They accumulated over their lifetime. From the 1950's and 60's, we call that the lead generation because of the leaded gas and the leaded paint. Those individuals long-term lead exposure, that's part of how we identify the problems with lead. It wasn't acute poisoning that was the case. It was the chronic bodily accumulation.

One of the problems with lead is it crosses the placenta. It crosses the placenta and it can get into the fetus. It can get into the fetus and create a lead accumulation within the newborn babies. That's what the statement is referring to. Without detoxification of lead, we are going to get re-toxification of our children. If we don't have this back and forth going, it will take four generations to eliminate lead from our offspring. It's already a problem, but to what extent? Some people are better at

eliminating lead from their bodies than others. Again, taking out the guesswork is a big part of what this event is all about.

Daily mercury exposure. Dental amalgams are the number one source of daily exposure to inorganic mercury. Now, again, we talked with Dr. Shade in-depth about mercury. I want to make sure you go back and re-listen to that episode. Fish and seafood and other source of mercury exposure, other food in the air and water also sources of mercury exposure. In 1988, scrap dental amalgam was declared hazardous waste product by the environmental protection agency. OSHA has mandates to handle amalgam fillings. In other words, they have to treat them as toxic ingredients. They can't just throw them in the garbage and these are the things that are in your mouth.

Think about the potential what happens to a lot of people is they are chewing. As they are chewing, they are breaking down their silver amalgams over time and they are releasing mercury vapors that have access to the bloodstream. This is very, very common thing that is seen in practice. One thing you can do right away, open your mouth. If you've got dark silver amalgams, I would highly recommend you visit with an environmental dentist and talk about that. I highly recommend you follow-up with a functional medicine doctor and test for mercury toxicity as well.

Scrap amalgam has to be stored in unbreakable tight sealed container away from heat and they have to use a no touch technique for handling amalgam. In other words, although it was in your mouth touching your tongue and touching your cheeks, the people removing it have a no touch technique because it's that toxic. Store under liquid preferably glycerin or photographic fixer solution so that it doesn't leak out. Again, this is just OSHA guidelines on how these have to be handled.

Corn

There is a study that came out recently on mercury being found in high fructose corn syrup. Again, I'm a better advocate of no grain that I am to say just avoid wheat, barley and rye. Corn, of course, is a grain, not a vegetable and corn derivatives are used in many, many processed food products and corn syrup is probably one of the biggest ones.

Fluoride

A little about fluoride. Americans are consuming large quantities of fluoride because of the water addition. In essence, it's being put in the water. It's being put in the toothpaste and mouthwash. You go to the dentist often times. They want to soak your teeth in fluoride. We are getting mass exposure. We don't want this mass exposure to fluoride because fluoride is a toxin and it can create a lot of different types of problems. It can damage the brain is one aspect, but one of the things fluoride can do is it can contribute to autoimmune thyroid disease. Fluoride displaces iodine. Iodine is necessary. Your thyroid gland uses iodine to make T4, the thyroid hormone, thyroxine. Fluoride displaces iodine. Instead of your thyroid having enough iodine to make T4, you are actually having fluoride be placed into that T4 molecule and fluoride it doesn't work as well.

Think of it like this analogy. If T4 represents a car, the T is the frame of the car and the 4 represents the four tires and they are made out of iodine. Imagine that car is a Ferrari and it's on a race track. Now, replace the iodine with fluoride. Now, those four tires are now fluoride tires. Think of those as like little tiny spare tires on the Ferrari, not racing tires. When you get that car up on the track at high speed, those little tiny tires are going to blow out. The thyroid hormones are not going to work as well. That's what happens when we get fluoride toxicity. That's what happens when we get fluoride displacement of iodine in a thyroid gland.

Metals in Vaccines

There are a number of different metals that have been found in vaccines. You can go to cdc.gov and you can pull these articles. You can see some of the common vaccines, look at all the different added fillers and ingredients that are in them. A lot of them grain-based, the alcohol, grain alcohol. A lot of the chemicals that are found formaldehyde in the DTaP vaccine, aluminum in the DTaP vaccine, which is a toxic metal. Again, I'm not going to deliver the vaccine point here, but several different types of

vaccines containing aluminum or mercury or yeast protein, which can have a gluten cross contamination to it or GMO soy peptides. Again, is this something you necessarily want to inject in yourself if you already have autoimmune disease or is this something you want to inject in your child as a risk for the potential of developing autoimmune disease? You've got to have informed consent and weight the risk versus the benefit.

Home-based action steps.

Removal of any obvious potential for exposure. Check cosmetics, toothpaste, mouthwash, and medications for heavy metals.

Toys imported from China,

Pots, pans, ceramic plants made in China,

Excessive fish. Fishes now coming back high levels of mercury can be found in some fish. There are companies that actually test their fish for mercury. One of them is Vital Choice, great company. They do a wonderful job providing wild caught fish that's been tested for mercury.

Vaccines can contain heavy metals.

Install appropriate water filtration. Water filtration goes a long way to removing the fluoride and the lead and some of the other toxic compounds, metal-based compounds that can be in our drinking water,

Rice consumption. I mentioned going grain free before, but again, a lot of people they'll continue to use that rice not knowing they are getting heavy levels of arsenic and cadmium.

If you are working with a functional medicine doctor, perform appropriate testing to identify it. Don't guess at it. Don't go through chelation without knowing whether or not you have heavy metal problems. You might not need it. It can be an aggressive treatment. It's not always necessary. Test before you guess. Pre and post urine chelation challenge test is a great way to go about this. Try testing is good for mercury. Porphyrin testing can be helpful. Urine halide testing to help identify over exposure to fluoride and bromide or bromine

Different therapies a doctor might recommend. Infrared saunas, IV chelation with EDTA, oral chelation. You might need to have amalgams removed or implants removed. You might in this process need detoxification support. Again, work with that doctor to develop a plan based on objective testing measures where you are not guessing and not doing treatments that aren't necessary and not spending money on a bunch of detoxification programs that aren't necessary. Test don't guess.

Infectious pathogens.

Moving on. We are still at chemical, but moving into infectious pathogens. Infectious pathogens can be localized. They can be systemic. What I mean by that is you can have an infection that's everywhere or you can have something that's just isolated to a particular region in the body. Examples of isolated infections: urinary tract infection, a yeast infection vaginally or orally, upper respiratory infection, sinus infection, skin infection. Very common to see yeast skin infections or staph skin infections. Joints can have infections in them. This is actually very, very common and then intestinal infection. These are all just examples.

They can be acute or chronic. I say acute or chronic because a lot of people don't even realize they have an infection because their internal definition of what an infection means is that an infection is only going to happen if you are acutely symptomatic. Meaning, you are running a 101 or higher fever. You've got green coming out of your orifices and you are down in bed like the cold or the classic flu. You can have chronic infections.

A classic example of a chronic type of infection is H. pylori. Helicobacter pylori is a type of stomach infection that can cause an erosion of the mucosal lining of your stomach. It doesn't cause a fever. It just causes esophageal reflux disease or what feels like gastric reflux disease. Again, chronic infection can affect you in different ways. It can affect tissues in different ways. A chronic sinus infection can cause headaches. A chronic joint infection can cause joint pain with no other symptom. Again, chronic infections are something with autoimmune problems need to be ruled out because infection is one of

the four primary triggers of autoimmune disease. They can be yeast, bacterial, viral, parasitic in nature. Again, it's a common trigger for the process of molecular mimicry.

Common infections that we'll see sometimes in the sinus cavities, MARCONS, which stands for Multiple Antibiotic Resistant Coagulase Negative Staph. I know that's a mouthful. We can have yeast infections in the sinuses and these are commonly biofilm producing types of infections that are resistant to standard treatments. We have to dive into different forms of methodologies and support protocols to get these under control.

GI tract infections, very common to see candida or other types of yeast. Common to see parasites. There's multiple varieties of worms and amoebas. There's bacterial infections. The most common ones that I see in the intestines and in the stomach, pseudomonas, klebsiella, and Helicobacter pylori or H. pylori.

The skin in the nail beds. You can see staph and yeast and sometimes herpes. Herpes looks like little blisters. It can sometimes be confused with something called dermatitis herpetiformis, which is a skin manifestation of celiac disease. Herpes usually is very, very severely painful and it's sharp and it's usually clustered blisters that wrap around the torso.

Systemic infections like Lyme disease. Lyme disease can affect all the tissues and it can go systemic and it can be very hard to identify and the right testing should be done. Standard western blot is not great at detecting Lyme disease. You've got to do much more detailed testing if you really want to get to the bottom of it if you suspect it.

Viral. Epstein-Barr virus is an example of a systemic. Mononucleosis is an example of systemic viral infection.

Infections can be measured through chemistry. They can be difficult to detect if you are running the wrong types of test. You've got to work with the doctor on this one. Don't go alone. If you suspect an infection, get in. You need to see a functional medicine doc and you need to get this figured out.

Symptoms vary greatly from chronic fatigue to exercise intolerance, joint and muscle pain without injury, brain fog, low grade fevers that sometimes it feel like hot

flashes. We could go on and on the list of symptoms that varies greatly. It's different for different people.

Action steps.

How do we prevent infections or how do we support the immune system to overcome them?

Good hygiene practices. Wash your hands. Wash the sheets and pillow cases often. Avoid casual use of antibiotics. A lot of doctors just prescribed them just because they don't do culture test. They don't really determine whether there's an infection that's bacterial. They don't differentiate between virus and bacteria and mold. They just give you an antibiotic. Avoid that. If a doctor wants you to take an antibiotic without appropriate testing, question him. Have a conversation with him. Make sure you don't do this because this is what leads to the production of biofilm resistant microorganisms and this can make you extremely sick and make it a lot harder to get your autoimmune disease under control.

Avoid popular public spaces where germs are easily spread, airports and other crowded venues. If you are suffering with chronic autoimmune disease, you are probably not up for a lot of travel right now. Again, these types of venues are where the damage can be done for a lot of people, daycares, hospitals, or acute care doctor's offices where a lot of people are coming in because they are sick. If a chronic infection is suspected, avoid vaccines. Avoid immune suppressing medications and seek professional help immediately. Don't go alone.

If you are working with a doctor, some things to consider. Perform appropriate testing to help identify. Now, there are a lot of different types of test and there's a lot of technologies that are out there that can help a doctor differentiate. I'll talk about a few of them here, but there are many, many more than what I'm talking about. This is why I just want to emphasize don't go this part alone. A complete blood count with a differential to analyze the white blood cell patterns can be helpful in differentiating bacteria from virus, from parasite infection, etc. Urinalysis can be helpful, especially urinalysis with something called a reflex to culture. A nasal culture can be helpful. Gastrointestinal cultures can be helpful. DNA PCR probes can be helpful. These are

probes that help us identify the presence of the DNA of different types of infectious microorganisms in the blood, in the gut, in the tissues. There are specialized blood testing that measures antibodies, another immune mediating compounds that can be performed.

Again, a smart functional medicine doctor is going to have access to a variety array of different labs based on your history and based on what he thinks is wrong. He is going to be able to narrow this down. Always ask your doctor to differentiate before accepting broad-spectrum antibiotics. I know I'm being redundant here, but I'm being redundant on purpose. Unless you have an acute life-threatening situation, do not casually use antibiotics. It can make your road to recovery a lot longer. I have seen antibiotic use in patients who are recovering completely derail everything that we've done for six months in treatment because it derailed their gut after we have started to heal it. It knocked out their gut again and that can take months to recover.

Again, I'm not saying don't use an antibiotic. I'm just saying don't use them casually unless your life is under direct threat. If you are in acute care situation in ER room, they think you've got a chronic bacterial infection that's going to kill you, by all means, IV the antibiotic in you. I'm not saying antibiotics are bad. They are one of the few drugs that actually can work to save your life. However, use them with judicious caution and intelligence. A culture sensitivity done by your doctor often times can help differentiate an antibiotics. Remember, they can exacerbate the problem if it's not a bacterial infection and they can set you back.

Physical issues.

Moving on through the autoimmune recovery matrix. We've moved off of chemical and see here now we are moving on to physical issues. I want you to understand that physical structure dictates function. As the old saying goes, "Square tires don't roll." Examples of structural-based issues in patients who are struggling: obesity, scoliosis, muscle spasms of chronic nature where they are in chronic pain,

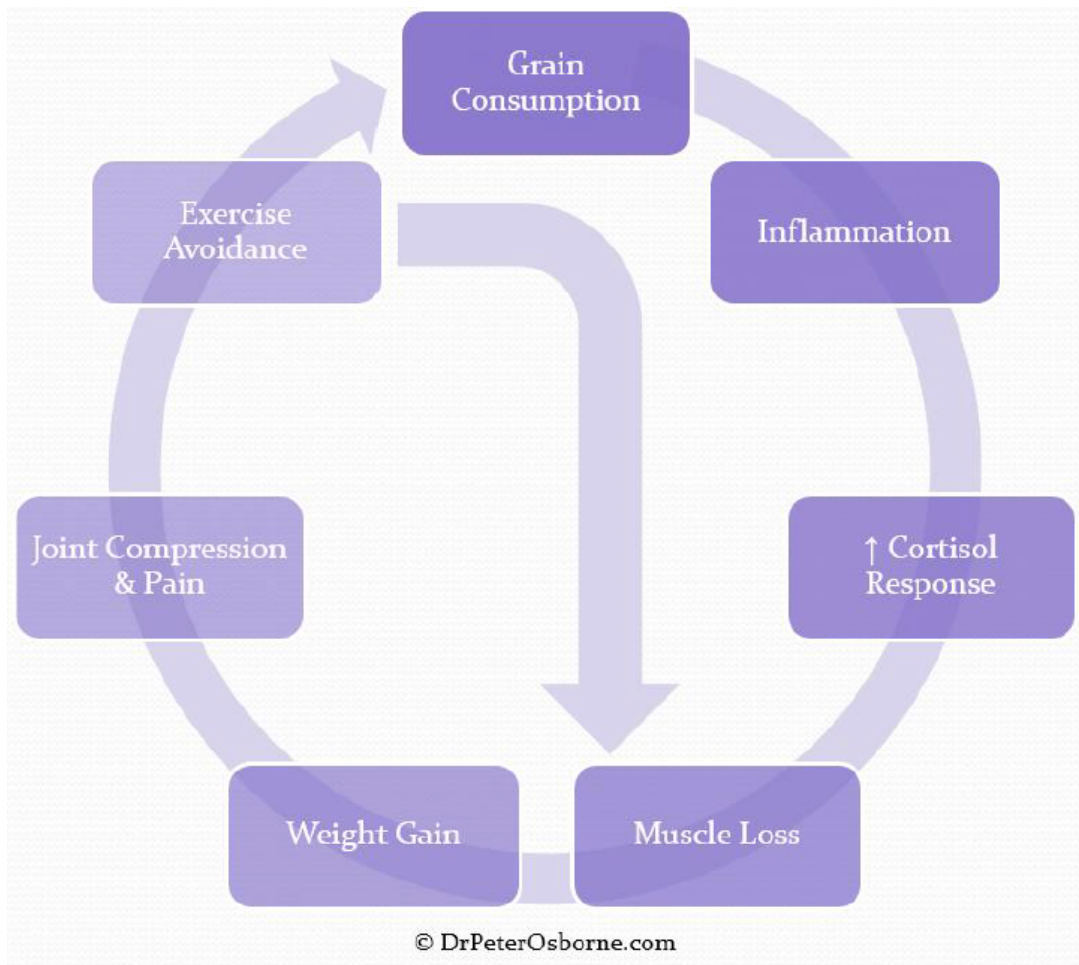
spinal misalignment, chronic injury, osteoporosis. It's structural. It's weakening of the bone element. Inadequate muscle tone or atrophy, shrinking of the muscles. These are all structural problems. These are things that can be evaluated on a physical exam or with the appropriate lab or with the appropriate technology.

It's very important you understand the cycle because a lot of doctors will give you the excuse to be sick if you let them. They tell you that aging is part of breaking down and being sick and not being able to exercise and having joint pain and muscle pain is part of the aging process and that is not true at all. As we age or develop illness, we exercise less. Generally, that's not because we feel bad. It's just because as we get busy with life, we get distracted from exercise. We are not involved in organized sports anymore. It's the very lack of exercise and sedentary lifestyle that actually creates a lot of the vicious cycle that I'm talking about here. It's the lack of exercise that causes muscle atrophy. It's the muscle atrophy that compresses your joint and makes it susceptible to pain. It's that pain that sets in, degrades and erodes your joint faster in life than what it should. It leads to more pain. It leads to exercise avoidance that leads to more muscle loss that leads to more joint restriction.

Then, what do we do? We have a doctor give us a medicine for pain. Then, the pain medication erodes our gastric lining and it causes leaky gut and it opens the door and the flood gates for all types of chemical toxins and burdens to come into our bloodstream. Going through this vicious cycle, we are told to exercise less because we are getting older and our false mind set. Again, it's a false mind set is that the older we get, the less exercise we are capable of doing. Then, we accept pain and physical limitations as a consequence of aging instead of our past actions or inactions.

It's important to understand you have to break this vicious cycle. I called it the muscle wasting cycle. In this case, it's the grain induced muscle wasting cycle because grain consumption can create inflammation, which leads to elevations in cortisol. Understand that cortisol is a catabolic hormone. That means it breaks your muscles down. That's why a lot of people that take it end up gaining a bunch of weight because their muscles are being broken down and their metabolism is slowing down. They get

the muscle loss. They get the weight gain. They get the joint compression and pain. They avoid to exercise even more. They get more muscle loss and we just keep repeating and then they keep eating grain. The cycle just continues to go on and on and on at infinitum until somebody intervenes.



Understand that exercise is vital to achieve vitality. Maintaining the muscle mass prolongs the human life span. It's one of the very few things in science that we can all agree on is that exercise can prolong the lifespan by up to 20 years. Muscle is not just for moving joints though. It's also an immune system storage facility. It stores protein. If you've ever seen somebody with cancer, they start to waste. That's called cachexia. The cachexia associated with cancers because the cancer patient is stealing protein from the muscle to fuel the immune system to fight the cancer. Remember, the more lean

muscle you have, the stronger your immune system reserve tank is. Muscle movement also increases oxygen uptake by the brain and other tissues.

Muscle movement improves lymphatic flow, which is how your immune system circulates and detoxifies your body. Muscle use helps regulate blood sugar, helps regulate your insulin levels and sweating from exercise improves your ability to detoxify. There's a lot of benefit to exercise and you need to make sure that you are making it part of your day. You need to make sure you are making it part of your lifestyle.

Note: If you've got chronic pain and injury, start slow to tolerance, find someone with experience who can guide you.

Find a good physical therapist, a good chiropractor, a good certified trainer with at least five years of experience in rehabilitative exercise.

Chiropractic, physical therapy. Acupuncture can be a tool to help improve your pain and get you on the right track. Deep tissue manipulation can also be effective.

Heat via infrared or cold via cryogenic chambers. Talk with a doctor. A lot of functional medicine doctors actually have these as treatment modalities.

PRP stands for protein rich or platelet rich plasma is a very effective treatment, more conservative treatment than orthopedist, surgeon or an injectionist or a pain management specialist might be able to do for you. Stem cell injections can have profound effects. I've had patients who the damage was so severe in the joint that we had to send them out for stem cell injection because even though everything else was right, we checked him for everything that we are talking about in this autoimmune matrix. The damage was so extensive that the stem cell was necessary to help aid in the healing process. These were all just possibilities. These are all just options. Again, having a good doctor who can guide you in this area is crucial.

Action steps






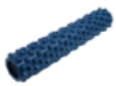








Exercise, self-care. Consider these actions before drugs and surgery. Stretching, foam rolling, self-massage, supplements that could be very, very helpful in this process, something called an SPM. You can read more about that on gluten-free society. These

are byproducts of fish oil. You can't get these in high enough quantities from fish oil, but this resolved inflammation where there's a chronic injury when sometimes the inflammation isn't being resolved. This can be very, very effective to resolve a very chronic injury that won't go away. Omega-3 is also helpful at modulating inflammation, proteolytic enzymes, turmeric, msm and chondroitin. These are all different kinds of supplements that can be helpful.

Physical contact. This is one of the most underrated, but most helpful healing modalities. It's the human touch. It's love. It's having somebody that you love whoever that is whether it's a hug or whether it's your partner, whether it's a soft touch, even a doctor's touch. Touch means that you care, not inappropriate touches obviously, but the human touch. We lack the human physical contact element. So many people lack this in their lives, but the human touch has tremendous healing properties. Physical contact can be very, very helpful.

Connect with the outside world. That means connecting with people. That means connecting with the earth. That means connecting with nature. If you've got pets, take them outside and walk them. Connect with sunshine. Connect with clean fresh air. Connect with a vacation in the mountains, but connect with outside where you can because these are all healing modalities. These are things that you have the power to do without a doctor that can move the needle in a very, very big way to improve your outcomes.

Consistent movement. If you work at a sedentary job, take many walking breaks at work. Consider ergonomic chairs. Consider standing desks. Some people had treadmill desks. Try to achieve 10,000 steps of walking daily. If you can't quite get 10,000 because of chronic pain, start slow and work your way up. Yoga, organize guided stretching routines. Some people can use rebounding trampolines or small rebounding trampolines that can work wonders. Whole body vibration units can do wonders to help increase circulation and get consistent movement back into the body.

Strength	Cardio	Flexibility
 Squat	 Walking (6000-10K steps daily)	 Yoga
 Pull Ups	 Running (No more than 3 miles daily)	 Foam rolling
 Push Ups	 Sprinting	 Pilates
 Lunges	 Jump Rope	 Static and Dynamic Stretching
 Situps		
 Vibration Platform therapy		

These are examples of just different classes and categories of exercise, but you should consider all of these things, not one of these things. A lot of people get stuck with running and they are running marathons and they are running long distance as they think that's all the exercise they need. Their running is actually eating away their muscle because they run so far and it's causing their muscles to get tired. They've been taught to run through the pain and they think they are doing something healthy for themselves, but they are actually preventing ... Some of my sickest autoimmune patients were marathon runners or are marathon runners. Keep that in mind. It's not anyone thing in this list of things that's a magic bullet. It's variety. It's not over doing it, but it's doing something every day.

If you are working with a doctor, depending on their expertise, get a complete physical movement exam. Make sure that doctor is touching you, again, not inappropriately, but touching you. Touching your joints, feeling for inflammation, palpating you. Having you go through ranges of motion, through your spine, through your shoulders, through your knees, assessing your capacity to move. This is very important. If a doctor understands your capacity to move, he is going to be better

qualified to tell you how to begin the process of exercise if you do have limitations. Ask for guidance in that area. Ask for a referral if the doctor doesn't do those types of things. Ask about non-invasive treatment options for pain if you are struggling really badly with chronic pain. Cold laser, ultrasound, TENS, EMS, chiropractic manipulation, acupuncture, stem cells, PRP, traction, decompression. There are a lot of different options here.

Talk with a doctor who is qualified and understands what these options are and get educated, so that you can get the help you need because if this is the hold up, then you're going to struggle. Remember, going back to the triangle, this perfect timing is that you have to address the physical. You can't not address the physical. You have to address the chemical. You cannot address the chemical. You also have to address the emotional and spiritual, but you can't address them one at a time. You have to address them simultaneously if you are going to have a successful recovery. Piecemealing doesn't work. Remember, I've talked about this earlier and piecemealing can be done in many different ways. Sometimes it's piecemealing only one aspect of this triangle. Sometimes it's only piecemealing one aspect of one aspect of what's in one triangle. Again, it all has to be done comprehensively to ensure and to maximize the potential for your recovery.

Emotional issues

Moving back through the autoimmune recovery matrix, emotional issues, last but not least. These are important issues, emotional, spiritual. Your autoimmune mindset, what should that look like? Hope. It's the number one requirement for healing. The absence of hope is defined as hopelessness, which is not going to recover. It's not going to aid you in the healing process. Your thoughts become you. If your thoughts are hopeless, if there are despair, that actually will have a physical manifestation on the rest of your body and a chemical manifestation on your mind. Laughter is one of the best forms of medicine. You need to have the mindset. You need to have laughter in your life. You need to discover laughter in your life if you don't have it currently.

Unresolved emotions can create or trigger autoimmunity and keep it running and keep it going. If you've got unresolved or you suspect you have unresolved emotions, you want to work with one of those types of professionals to help overcome that issue.

Be a partner advocate with a good functional medicine doctor. In essence, if you've got a problem here, you don't always necessarily have to seek out a counselor. Sometimes the best counselor is a family member or a church pastor. Sometimes the best counselor is a spouse, but you've got to be able to process unresolved issues. Somebody has to be your advocate partner. My advice to you is you've got to find somebody who that can be.

Expand your horizons, reading books, audio books.

Explore topics you are passionate about. If you are passionate about getting healthy because you are ill, this is the perfect topic to explore. Observe the world around you.

Use the internet.

Discover love of a new hobby. A lot of people don't have laughter and happiness because they are defined by their illness and they have nothing else in their life that defines them and they create the psychosomatic response. They create a vicious cycle that their illness drives their illness and so the stress of their illness and the presence of their illness. The identification of themselves as being ill drives the illness forward. We have to break that cycle.

Part of what helps break that cycle is hobbies. I know that sound silly. It may sound like, "Oh, my gosh. I can't believe you just made that recommendation," but it's true. A hobby, something that distracts your mind from your woes and your worries, something that puts your mind in a positive place, in a happy place and a hobby can do that. Find something that you love that you are passionate about that you can do that you can enjoy, and learn from others and return the favor. There's an old saying, "Learn, do, teach." The steps of becoming a master. The steps of becoming a guru is when you learn and you apply it. You do it, then you teach somebody else what you just applied and you share your wisdom by returning the favor and passing it and paying it forward.

One of the other things that's very effective if you have a child. Play with your children. Play with the child. Sometimes children can give us amazing insight into ourselves. Sometimes adulthood and the stress and the trauma of illness makes us forget the simplicity of life. Sometimes it takes a child to reconnect us with that. Playing with a child can be very, very therapeutic and very, very helpful.

Action steps

Prayer. Control what you gain and give up the rest. Give the rest up to the Lord or to God. Many of you may not like the secular talk. I'm a Christian. I'm going to talk that way. If you are not secular and you're not a Christian, find what moves your spirit whether that's meditation. It doesn't matter. Find what gives you peace emotionally.

Try a float tank, also known as sensory deprivation therapy. This can be one way to really ease the mind and ease the stress.

EFT stands for emotional freedom technique.

Education yourself. Most health errors are made out of ignorance. Educate yourself about what the potential possibilities you can do are and also know yourself. Are you a preventative person? Are you proactive versus reactive? If you know yourself, then you can surround yourself with people who help you become more successful. If you are food addict, for example, and you have an emotional relationship with food and you know that about yourself, then you can seek the help out to deal with that as opposed to just ignoring it. Self-analysis and knowing yourself is very important if you're going to have a successful outcome.

Invest the time in acquiring knowledge. Again, you are here reading this book, you are already doing that.

Invest time in applying your acquired knowledge. Don't become so smart. Don't become one of the smartest people in the room who don't listen to their own advice. Nobody likes a financial adviser who is broke. Nobody wants to follow that advice. If you're going to invest time and the knowledge, you have to apply it for yourself to get

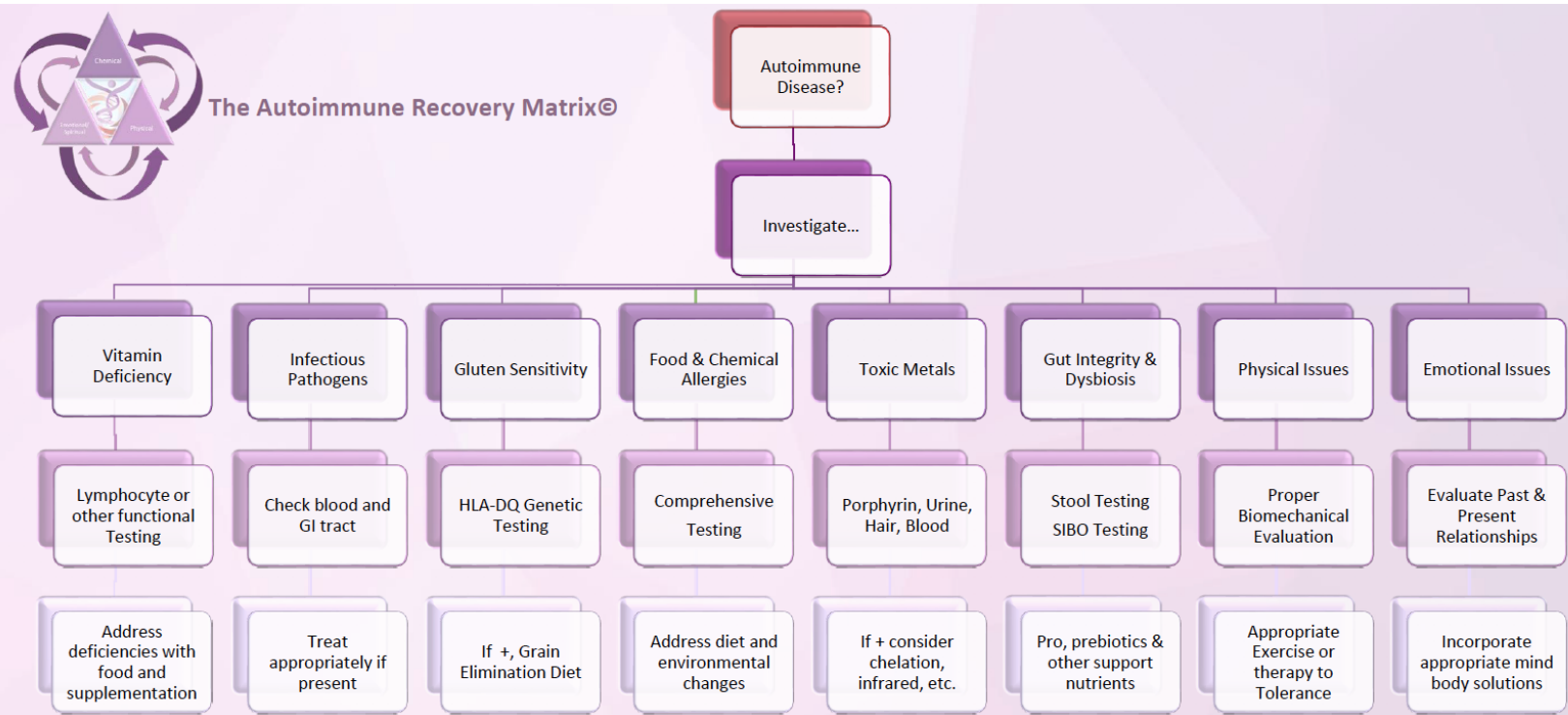
healthy and that's very, very important. That's very, very important in this process, applying the knowledge that you learn.

Then, teach others. That's the gift back. If you find the path to health, if you find the path through this information, share it. Teach others, pass the wisdom along. Together, we create a ground swell movement. It starts as grass root, but becomes mainstream and that's what we are after. We are after the 50 plus million people suffering with autoimmune pain to be able to find a meaningful real solution. Teaching them as you find solutions from what we are talking about.

Be accountable. Be accountable to yourself and have a people around you that will hold you accountable. One of the biggest drawbacks to people getting better is a lack of self-accountability or a lack of environmental accountability.

Action steps working with a functional medicine doctor.

There are a lot of areas in mind-body medicine that can be explored depending on the doctor's level of expertise. Biofeedback is a technologically based system, but then there are many other forms. There are a lot of different types of biofeedback. There are a lot of different forms of counseling. There are a lot of different ways to approach this. Sometimes, just having someone you can talk to and get burdens off your shoulders can help you see the light at the end of the tunnel. Sometimes working with a pastor can help. Sometimes working with a psychologist or psychiatrist is necessary and needed. Again, work with somebody if you need to work with somebody and explore these options.



That wraps up the autoimmune recovery matrix. Here it is in its entirety. This diagram you can use as a tool forever more with your autoimmune condition and you can take it and you can work the matrix. Work it. Don't piecemeal it. Don't do one thing at a time. Work all of these steps simultaneously because your body is a holistic machine. If you work it together, if you work it simultaneously, your outcomes will be dramatically enhanced and you'll be well in the road to autoimmune recovery.

Remember that failure occurs when the approach is piecemealed. I've seen this. I've worked with thousands and thousands of patients. I've seen everything you could possibly imagine from some of the most rare forms of autoimmune disease to some of the most common forms.

In every single case where that person struggling, it was either because the approach was completely wrong. It was an approach that was artificial chemical manipulation or artificial physical manipulation through surgery or it was a functional medicine approach that was piecemealed and that's not functional medicine. Understand the true definition of functional medicine is that it is holism, that it is a non-piecemeal approach looking at all of these things simultaneously and creating a paradigm or a platform for you to follow that's going to get you on the right track and get you healthy again.

Remember, there's no perfect approach for everyone. That's why this matrix exist because if you are working this matrix properly, what you are allergic to is going to be different than what somebody else is allergic too. Whether you have toxic metals or not is going to be different from someone else. The type of infection you have or don't have is going to be different. The matrix itself allows for the perfect approach for you. The perfect approach is working the matrix the way it was intended to be worked without piecemealing it.

Remember, biochemical individuality trumps generic recommendations. A lot of people have a lot of great advice. There are a lot of generic information. There's a lot of generic recommendations. This summit was a lot of generic recommendations based on a lot of really smart and wonderful doctors, nutritionist, and healthcare providers' opinions and all of it is right if it matches you and all of it can be used if it matches you. How do you take that information from all of these wonderful people and apply it? How do you do that? You work this matrix. You work it repetitively over and over again until you put your disease into remission. Your body is whole. It requires a holistic approach. You cannot piecemeal it.

Healing Can Take Up to Three Years



Some thoughts about healing. **Healing can take up to three years.** With autoimmune disease, remember your immune system has a life cycle of about six months. For most people who are working this matrix diligently with very good compliance, it can take about 18 months to see a great recovery. I say recovery, I don't mean improvement. A lot of people get improvement within a few months and there's noticeable improvement along the process of this three years. In essence, they are moving in the right direction the entire time, but recovery and resolution of autoimmunity can take that long. Part of it is having a realistic expectation of the outcome. You can't expect that 30 years of self-induced or accidental induced damaged from environmental toxins, chemicals and other things is going to heal in a month or a week or a day. It can take, again, up to three years. Have a realistic expectation of your outcome. It shouldn't take three years to notice an improvement. It shouldn't take 18 years to notice an improvement. Improvements are noted after days, weeks, and months. There should be consistent notable improvements if you are working the matrix properly.

In summary, this is just again just kind of summarization. Remove the bad. Food allergies, toxins, infections, inflammation, bad people, bad relationships. Replace and repair. This process, you've got to have a microbiome in your gut. Your gut can't be traumatically damaged and inflamed. The tissues that were damaged from autoimmune disease, those things have to heal just because you take away what damages and doesn't make them automatically heal. You've got to replace the nutrients to help them heal, to expedite their healing and part of that is through food. Food nutrients is one of the best things we can do. Non-processed whole nutrient dense foods is your best ally along this replace and repair pathway. Sometimes supplements are necessary. Again, working the matrix and testing and having somebody who can give you specifics and not generics is very, very helpful.

Environmental nutrients. This is sunshine. Sleep is an environmental nutrient. Making sure you are tapping into those things, very, very important for the healing repair process. Relationships, again, getting rid of bad ones, but we are repairing bad ones so that you don't have toxic emotional environment around you during your time

were you're trying heal. Then, restoring and maintaining. Once you do heal, maintaining the healing. Just because you feel better is not carte blanche for you to start doing everything you used to do that created the damage in the first place. The healing phase, work on building a solid foundation of health. Apply what I like to call the fundamental lifestyle behaviors and that's the right diet, it's exercise, it's sleep, sunshine, clean air, clean water. It's stress management. It's having love and laughter and the Lord or whatever fulfills you spirituality in your life. Those are all extremely important and, again, a part of the healing process.

Healing is a journey and it requires an intelligent and guided action, not guessing. It requires you to listen to your body, to take that feedback, to make adjustments and those adjustments can lead to improvements. We can expect setbacks, setbacks happen. For every two steps you take forward, you can take a step backward because this is a learning process. It's a journey. I've been doing this a very long time. I've worked with people a very long time. This maybe the first journey you've ever experienced as your own and so it's all new to you. This is where, again, intelligent and guided action. Work the matrix. What's next? Make sure you are receiving my emails. If you are not, go and sign up at drpeterosborne.com.