



EVERYDAY IMMUNE RESILIENCE

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Hi, everyone. Today, I'm going to go into concepts related to the most common question I hear all the time in clinical practice working with chronic patients, which is why do we get food sensitivities? Why are the rates of food sensitivity going up? I want to try and explain it to you from an immunological perspective. What I want to do is the first 15, 20 minutes, I want to give you some background information on those concepts. Then we can open up question and answer and I'll be happy to answer any questions anyone has related to the topic.

I think we've all seen that we've had a significant number of food sensitivities develop in different populations. I think for most of us that are adults, when we were kids, we didn't see all these kids sensitive to nuts and having different sections in school lunch areas where kids were not permitted to bring any types of nuts especially peanuts. We've seen an explosion of autoimmune disease. Current research shows about 20% of the worldwide population has confirmed that they know about some adverse reaction to foods. The question is why are these things happening?

What I want to do is I wanted to try to explain it to you from the peer-reviewed immunology literature. I'll also share with you some concepts and theories that are out there that haven't been proven yet. Just some of the theoretical models that need to be investigated in the future. These models I'm going to share with you are from the immunological world. Meaning, immunologists that are working on food protein sensitivity or involved with it. Let's first talk about the difference between food sensitivity versus allergy. That's the first place to start.

Food allergy is different than food sensitivity. The reason that's different is because of the type of immune response. When we have an immune response to a food protein, there are certain antibodies that are formed to cause that immune reaction. The antibody that's used in an allergy is called an IgE antibody. The IgE antibody is fast. It's immediate. It activates what are called mast cells, which get high amounts of histamine. That's your classic allergy. Whether someone is allergic to dust or dander or certain things in the air like pollen that have immediate reactions, those are IgE sensitivity.

Those are the ones that are classical allergists are concerned about. Because they're not really concerned about food sensitivities. They're worried about allergy. The reason why is also because allergies can cause anaphylaxis and cause the throat to close up and cause some serious inflammatory reactions. In the conventional world of allergy, the focus is really on this IgE, so-called immediate immune response because it's such an aggressive response. Those types of food sensitivities can be measured with blood test where the antibody that's measured is IgE.

They can also do as well the skin test where they prick a person with different proteins and see the skin reaction, which is a very unreliable test, which I don't understand why people are still

using because of the data out on it. Then you have what's called sensitivity. Food sensitivity doesn't involve this IgE antibody reaction. The other antibodies that are involved with the food sensitivity or IgG, IgM and IgA. These are called delayed reactions. The difference between them is that the response isn't as aggressive, is not as fast. It does create this inflammatory cascade.

These types of food sensitivities, not allergies are measured with blood tests where you look at a food protein. They're measuring one of these delayed antibody markers. It could be for example, corn IgG or corn IgM or corn IgA. Those are the key difference between food allergy and food sensitivities. You have to understand that tests that measure IgG, IgM, IgA are not testing allergy. They're only testing food sensitivity. Now, food sensitivities when they get active enough and aggressive enough, they cannot cause a delayed reaction. They can be pretty immediate.

There are people that have food sensitivities to for example milk protein. As soon as they eat it, they get significant inflammation and bloating. They don't have an IgE allergy reaction. They have a food sensitivity that is now so aggressive. It almost looks like an immediate onset that they have symptoms within the first few minutes. Now the problem with food sensitivities are sometimes, when you get exposed to the inflammatory responses that are very subtle and then they create inflammation over the next few days. If you have multiple food sensitivity, it's really hard to identify them.

This is why sometimes, people just go on an extreme elimination diet where they get rid of let's say an autoimmune Paleo diet where they get rid of all foods and then they see if they feel better. There are certain food proteins that are more reactive than other food proteins. They get rid of those, which are typically milk, wheat, grains, nightshades and then they see if they feel better. That's just the basic background. Just to make sure we understand the terminology. Now, let's talk about why people actually have more food sensitivities.

The reason why people have more sensitivities is because of two main reasons. This is just from classical immunology. The antigen has a greater antigenicity. There's increased immune reactivity by the immune system. Let me explain each of those concepts in more detail. The antigen is referred to something that's foreign. Anything that's foreign to the human body that enters and has an immune system reacting is called an antigen. The antigen can be a pathogen like a bacteria or a virus. Food proteins are also called antigens.

Now, there's a concept of antigenicity, which is how aggressive an antigen is and how reactive that antigen is. We know right now, the most common food proteins that have the highest degree of antigenicity or the highest degree of reactivity in people tend to be gluten, milk proteins, albumin, which is egg protein, casein from milk. We're also seeing lectin proteins become very reactive especially in autoimmune disease populations.

Those food proteins typically are the ones that in a clinical setting, when you're suspecting a person may be having an inflammatory response from their diet, those are the ones to suspect first. Now, you can have a food sensitivity literally to any protein. The key concept is the antigen itself. One of the things you have to understand about antigens in the immune response against

foods is this antigen that comes in as a protein. You can't develop food sensitivity to vitamins or minerals or isolated sugars or fats. It has to have a protein with it.

Now, it could be a fat with protein like a lipoprotein or sugar with protein like a glycoprotein. For the most part, antigens have to have a protein structure where the immune response reacts against the protein and it makes antibodies. The immune system doesn't react to the entire food protein or the entire protein. It only reacts to a branch of the protein. Think of a dietary protein as a tree with many, many branches. Each branch is what they call an epitope. Each branch of these epitopes have amino acids. There's an amino acid sequence for each of these branches of the protein.

What happens in immune responses to food proteins is the immune system decides to react against one of those branches, one of those amino acid sequences. Not to the entire protein. This is why for example, people who have gluten sensitivity, if they only measure out for gliadin, they may not catch the gluten sensitivity. They may need to check ... [unintelligible]. There's different branches of the protein. If someone reacts to milk, they may need to not just measure casein. They may have to measure butyrophilin. They may have to measure casomorphin.

Those are different protein portions that are involved with milk. Each food protein has different branches and only do a sensitivity test in the lab. They're looking to see if there's an antibody elevation to that food protein. For QC when you look at the results, all you see is corn or soy or egg or grape or whatever, pineapple antibody. Either IgE, IgG, IgM or IgA. That will give you a clue what's going on. This concept of antigenicity is basically based on there's a protein. We respond to some part of that protein.

The concept that I was trying to explain earlier that I want to get into is that what determines the antigenicity, how aggressive the immune protein is can be changed by a couple of things. One of the key things is if the antigen changes its configuration, the configuration of the protein changes, it can become either more reactive or less reactive. Research studies have found that the protein configuration can change when heated or when cooked. Some foods become more reactive or less reactive or more antigenic or less antigenic when heat's involved.

Some people may react to raw eggs on the food allergy panel but their response is actually to cooked eggs. Someone can react to raw tuna versus cooked tuna. We know that heating can change a configuration. This is very important to understand because when you're looking at antigenicity is to realize that when you're looking at conventional laboratories, when they're measuring foods, they're all raw. They're all measuring raw food. Lots of food sensitivities are missed with classical food sensitivity testing because all the labs are using standardized kits where they're using raw food proteins.

The only lab in the world that's doing raw and cooked because of the research and because they're leaders is a lab called Cyrex. That's really the only way you can find the difference between antigenicity. One of the key things to understand is, if you have a reaction to food, it may be different if it's cooked versus raw. The other thing that's interesting as research has found in a great article published by immunologist, Dr. Vojdani he found that when foods

combine together, they actually also change the antigenicity or the immune reactivity of the food protein exposure.

For example, he tested all the different ingredients in a pepperoni pizza individually and then just tested pepperoni pizza. There's a significant reaction to people that just reacted to pepperoni pizzas and each of the ingredients. You do the same thing with donuts. He did the same thing with several other food proteins. It showed the individual ingredients may have some degree of reactivity when they're all combined together. They may have more. Because when these proteins are all cooked and heated together, their structure changes differently.

What they do by the way in the lab is they take a food protein. They grind it up. They purify it. They put it on a well called an ELISA well and then they take the patient's blood. They mix it with the well and then they put a dye into that well that sees if there's any binding. They measure the degree of color change for the dye with what's called the optical density measurement machine. They can see how significant the reaction was or if any reaction occurred at all. That's called ELISA testing. He did it with individual foods and with combined foods and saw that there's a difference.

One of the interesting things is that when you look at the concept of food sensitivity that combining the food proteins together may change the antigenicity in cooked versus raw may change the antigenicity. Ultimately, the collection becomes okay. If we're seeing an increase rates in food sensitivities, what's causing these food proteins to be more antigenic? Why are they being so much more reactive now? There's several reasons for this. Let's talk about for example wheat protein. There's been an explosion of gluten sensitivity in the US and Europe that's noted. I'm sure it's worldwide.

What they had done clearly, what some research show that it's not really the increase in the prevalence of gluten sensitivity. It's not because it's a trendy diagnosis. They've actually looked at blood samples of soldiers on Air Force Base from 50 years ago to now. They did a gender, an age match comparison. They found a significant increase in the rates of gluten sensitivity to populations 50 years to now. In the world of immunology, Celiac disease they've actually investigated this question.

One of the things that they've noticed is that the gluten compounds, the gluten proteins for example, which is an example of one food protein that's more antigenic now than before has been hybridized. One of the things that farmers have done is they've changed their seeds. They've mixed seeds to get to the point where they can be more weather resistant. Some studies have shown when they do spectroscopy that there's a three to 5% difference in protein sequencing with what's called native wheat versus modern wheat. These are terms that are used in the immunology literature.

Native wheat versus modern wheat. Modern wheat tend to be more antigenic, more immune reactive. We know just the fact that they're not genetically modified but they've been hybridized that these food proteins are much more different now than they were before. Specifically with wheat. The other key thing that some immunology researchers have theorized and most of this work is coming from MIT researcher, Stephanie Seneff, S-E-N-E-F-F. She's really

put together some great research and some great information with the role of pesticides, specifically glyphosates bind to wheat.

When the chemical binds to what protein, it changes the configuration of the protein. It becomes more antigenic. That's actually what my PhD was about in immunology. I did it with fibrinogen and serum albumin. People get exposed to [inaudible 00:14:45] to the protein in blood called serum albumin. It changes configuration. Makes it more immune reactivity. There's some theories and some studies that have shown the spikes of reactions with the Celiac disease and gluten sensitivity to the usage of different pesticides specifically glyphosates according to the Professor Stephanie Seneff's work at MIT.

We know that that's one possibility. The use of pesticides and how they use pesticides to clear the fields have dramatically changed over the last few decades. One of the theories in the world of immunology why there's so much more food sensitivity is that these pesticides are not just washed up. These pesticides bind to proteins. A great example of a chemical binding to a protein is if you ever use a lollipop and lick your tongue. Your tongue turns red, that's food coloring binding to protein. That's a chemical binding to protein. It just stays there.

When pesticides bind to different types of grains, they change the configuration of protein. They're not simply just washed off. Those proteins with new configuration have the potential to cause some degree of immune reactivity. That is one of the theories of why some foods are more antigenic. Also, there's research that shows and I'm going to stick with gluten because a lot of the significant research have been done with gluten. It could be with any food protein. The concept's the same.

In addition to things like chemicals or pesticides binding into proteins changing configuration, it can be more antigenic. The other key thing is that proteins when they go through a food processing mechanism where they're adding different chemicals to make it more flexible or more stable or adding different types of gums to process the food. For example, someone taking a basic grain and then adding different things to make a pretzel to make it more sticky or less sticky and more flexible. It will change the structure of it. Those things bind to the proteins and change the structure of it.

They can become more reactive. For example, deamination takes place with gluten. When gluten is processed to things like pretzels or cookies or other compounds, the food processing of it changes the configuration of protein to not just what's alpha Gliadin but what's called deaminated Gliadin. That's more reactive than before. That's another major issue with foods. The chemical process, the food processing is changing the configuration of protein making more antigenic. The third mechanism that's out there related to food sensitivities is related to food coloring.

One of the things that's interesting about food coloring is that food coloring itself is not going to cause an antibody response. Food coloring binds to a protein. When it binds to a protein, it prevents that protein from being broken down. Remember, proteins or different branches, if they stay in that structure and then make antibodies against them, then the inflammatory immune response takes place.

If food protein has to be basically broken down by digestive enzymes into individual amino acids and then when they're broken down to individual amino acids instead of an entire combination amino acid, which is a protein, then they lose their reactivity. As long as a food protein gets undigested, it's going to cause a reaction. Food coloring significantly impacts the breakdown of food proteins. The worst scenario when you look at antigenicity is you take food protein that's been hybridized or even genetically modified that can change the protein structure of it and make an issue for susceptible people.

Combination with food processing or that can also change the configuration of the protein and add food coloring to it. Now you have a food protein that's very new. It's a new antigen. They have great re-antigenicity. It'd be hard for the system to break down. Now, you've got a major trigger. You have a greater degree of antigenicity. Just to give you the big picture because I have a few more things to talk about before I take questions. The reason why we're seeing so much elevation in food proteins is because of two reasons.

One is that antigenicity concept, which is pesticides binding the chemicals, food processing, food coloring. The second issue is how the immune system reacts to food proteins. Okay. Let's talk about how increased immune reactivity to a food protein is also part of the reason why we're seeing a greater degree of food sensitivities. When we ingest a food protein, the minute we ingest it, we have immune cells in our mouth that are sampling the food proteins that are called dendritic cells. These dendritic cells immediately tell the immune system. Hey. There's a new food protein coming in there.

It's either a response or not a response against it. Once we swallow the food protein, those food proteins get into our gut as a solid protein and then digestive enzymes have to break it down so that it becomes much more reactive. We also have food protein sampling it. Eventually, our food proteins have to be broken down to very, very, very small amino acids so they can cross the intestinal lining. They get into our circulation in the bloodstream.

We have T cells and other immune cells in our bloodstream that are sampling and reacting to the proteins. If any part of this cascade is dysfunctional, then you can have increased reactivity to proteins. The most popular one that's out there as a mechanism that causes a person to be more reactive to the food is the concept of leaky gut or intestinal permeability. That's where the tight junctions open up. When intestinal tight junctions open up, then undigested food proteins can cross. As soon as those undigested food proteins cross, then immune cells react against it.

That's the major concept of leaky gut. When people have leaky gut, where their intestinal tight membrane junctions open up, then they can start to have the development of many, many new foods. Unrelated to the antigenicity, it's its own independent factor. There's been an explosion of research with intestinal permeability in the past 10 years. The thing is many people are developing test from permeability when they look at studies because they have lots of intestinal inflammation. For sure, no Celiac disease patients have intestinal permeability.

We know autoimmune disease patients have intestinal permeability and these inflammatory responses open up. We recently published a paper, *Journal of Molecular Science* when we

looked at patients with inflammatory bowel reactions. We found a really high percentage of them had intestinal permeability and blood brain barrier permeability. We know that an inflammatory condition when there's gut inflammation, when there's potentially bad diets and there's lots of stress, those things all impact the integrity of the tight junctions. They open up that can cause food sensitivity.

Another key thing that's causing people to react more to foods unrelated to leaky gut is their microbiome. We know that when the food protein eventually gets into the gastrointestinal tract, that different bacteria in the gut will either dictate a response against that food protein or not or modulate the effect of T cells or other immune cells in the gut and dendritic cells to respond or not respond against it. Bacteria in the gut produces something called polysaccharides or post biotics, which signal the immune system.

When people have really poor microbiome diversity because they're eating the same food everyday or they're eating fast food everyday. They're not getting enough healthy diverse vegetables into their system. Their gut microbiome can change. They could be more reactive to foods and unable to calm down the inflammatory response when they're eating foods that are inflammatory. Another main mechanism that can cause a person to be over reactive to food protein, which is why they're developing food sensitivity is something called their SIGA levels drop. Their SIGA levels drop is a key factor.

Let me explain what SIgA is. In your gut, you have these immune cells called secretory IgA cells. When you eat food proteins, this SIgA cells engulf the food protein. When they engulf the food protein, they basically prevent it from activating immune cells. It's like a layer of coding to calm down the immune response. Studies have shown that significant stress over training and once a day, they look at athletes going through basic training. Soldiers went to basic training had their SIgA levels significantly drop. Those are some reasons why you can have increased responses to food sensitivities.

What they've also found is that there is an intimate connection between immune cells and the microbiome and gut and the immune cells in the liver through a pathway called enteropathic circulation in which if these macrophages or immune cells in the liver are over activated with constant for example, environmental exposure chemicals, that can make the gut immune systems more responsive. Those are some of the main mechanisms that cause these immune reactivities. What happens to a lot of people is something takes place. They get an autoimmune disease that develops all of a sudden. They get an autoimmune disease.

Their immune tolerance gets compromised. This is another concept. Everything I talked to you about intestinal permeability and microbiome balances and dendritic cells and SIgA all related to a concept called immune tolerance. By the way, if you go to Dr. K. News, I've written several articles about immune tolerance and these concept. I do have an online program that teaches you how to improve your immune tolerance. It's called the 3D Immune Tolerance Program. If you are interested in learning more, please check that out. Let's go back to the basic concepts. At some point, someone may get an infection.

Their immune system gets dysregulated and whether their SIgA levels go down or their dendritic cells become dysfunctional. They get intestinal permeability. They have multiple food sensitivities. Someone else can get severe stress. Their immune system dysfunctions. Someone else can be exposed to a chemical load and their antioxidants get depleted and their gut barriers get compromised. Their cells in the liver get overactive. Now, they develop food sensitivities. Sometimes, the combination of all these factors.

Someone could be living in a mold-infested building for a period of time and the next year or two, they get that constant mycotoxin exposure that breaks down their barriers and causes problems. We have created a life chain on that as well. Those are all the basic concepts in both. One last thing before I take questions, which is really important. I'm sorry I've gone a little bit over than I want to. These are things that's hard to just have a discussion unless you understand these fundamentals. There's also a concept called cross reactivity.

Cross reactivity means one food protein or antigen has a similar amino acid sequence to another. When a person makes antibodies against this one food protein, they can also cause reactions against things that have the similar amino acid antibodies. They first identified cross reactivity in the immunological literature in 1942. What they found was that certain people that were sensitive to pollen allergens had sensitivities to specific fruits. What they found was that amino acid sequences of certain fruits were identical to pollen. They had this cross reactivity response.

This takes place with for example, nuts. Most nuts have similar amino acid sequences. When you get exposed to one nut, you get sensitive to most of them. Same with seafood. Those sea foods have similar amino acid sequences. When you get exposed to seafood proteins like crab or lobster or salmon, you start to react against other food proteins. That's why many people say I have a nut allergy. They have a seafood allergy. It's because the amino acid sequences of these food proteins are so similar. That once you develop a symptom to one of them, you're active against all the other ones.

Those are all the different key concepts with gluten sensitivity. What I'll try to do is I'll try to get into some questions here and go from there. The only thing is when the chat crashes, I won't be able to answer questions that are case studies. I can't manage case studies. Yes. Question from Heather is why will foods come up as reactive on testing if the person has not eaten it? Random foods such as lobster where you know there isn't any cross contamination with other foods? Heather, this is a good question.

When you look at food antibodies and food proteins and food allergy testing, if you get exposed to food protein, antibodies are going to spike up in the first two weeks. After about two weeks, you get a good reading of them. For food sensitivities, IgG, IgM, IgA. It'll stay up for a few months, maybe about two months, two to four months. If you haven't been eating the food protein, then there's no reason for it to show up on a lab test.

For example, if you tested positive for lobster but hate lobster and never eat lobster and you're wondering why the food sensitivity test is showing you that you have reactions to lobster even though you haven't eaten it and never have eaten it because you hated your whole life or the

past 10 years. You may be eating shrimp. You may be eating another seafood or another food protein that's similar in structure. It's going to show up on a lab test as if you were eating that food protein.

The reason why you may have foods show up that you're not eating is because of that cross reactivity with sensitivity to food that you have that's similar structure proteins. Okay. Next question here. By the way, thank you for everyone for joining me. It's always so nice to see people interested in these topics. Okay. Is there a type of protein powder you should stay away from? Are there any types that could be recommended? From Masuka. I can tell you for the most part, most food proteins have an issue.

When you look at whey protein or you look at protein powder drink, whether it's pea protein or vegetable protein or collagen protein or whatever. There is a possibility that they may be an issue. Because the processing of a food into a powder changes the configuration that protein makes it more antigenic. I know for myself when I work with lots of autoimmune disease patients, I don't recommend any powders for them. Because most of them are reactive powders.

If you are a person that blocks food sensitivities and their immune tolerance is weak, you really shouldn't be eating any foods with protein powders, protein powder shakes. Because they have a tendency to be very antigenic. Be aware of that. It's just better to eat whole food. Once you start to block food sensitivities, you really need to stay away from high antigenic foods. Any protein that's been processed like protein powders is something you want to be very careful with. Just like you also want to be careful with eating proteins that have lots of food dye on them.

Because if you can't break down those food proteins because of the food dye, that will increase the immune response against it. Okay. Some questions here. Dr. Reyes is here to help me. Thank you.

All right. Here we go. From Susan. **I understand your 3D Immune Tolerance Program helps with low SIgA levels. I have high SIgA levels for a year.**

Yes.

Can 3D Immune Tolerance help with that?

We talked about low SIgA being a factor with causing increased immune sensitivity. What about high SIgA? The 3D Immune Tolerance Program by the way is the course that we teach. The 3D is diversified distinguish and regulate we talk about to implement to try to improve immune tolerance. If you have high SIgA, then you're probably dealing with an active trigger. You probably have either an infection in the gut that's still not identified or you're still getting a significant reaction to food protein. It could be gluten sensitive. It still got trace amounts of gluten exposure.

SIgA is telling you that there is an active trigger in your gut. The most important thing is to try to identify that trigger and remove it. You can still implement all the concepts of the 3D immune

tolerance. It'll just help make your immune system and your microbiome healthier. At the end of the day, if your SIgA levels are high, then you have an active inflammatory trigger that you still have not identified that you need to remove.

MJ. Are you saying a food sensitivity reaction can't be fast or cause anaphylaxis?

Food sensitivity reaction cannot cause anaphylaxis. That has to be an IgA but the immune system reaction can be immediate over a period of time. If memory cells, memory B cells start to become very efficient to that dietary protein, then as soon as you get exposed to dietary food protein and have a sensitivity reaction meeting with IgG, IgM, IgA, then you can have an immediate food response. You can't have that happen. Typically, when you look at the classical model of food sensitivity that caused a delayed reaction.

Because from a lot of these food proteins, it takes a day or two to have that immune cascade take place. Over time, it can definitely become almost instantaneous.

Okay. Dave. **How can you get enough calcium in your diet?**

How can you get enough calcium in your diet? Eat vegetables. Vegetables are really, really high in calcium. Please don't think you need to drink milk to get calcium. Just be aware of that. You don't need to drink milk to get calcium. You get plenty of calcium if you eat a lot of healthy vegetables.

Okay. Debra. **You've answered this before but you might want to again. If you haven't eaten gluten for years, can you get an accurate test showing you have a sensitivity to it? Do you need to eat it before the test?**

If you haven't eaten gluten for many years, there's a strong possibility you may get what's called a false negative test. You haven't had the exposure to the food protein. You're not going to have antibodies against it. Typically what we find with people, even if they're on a gluten-free diet for a period of time, they're still eating foods that are cross reactive to wheat accidentally. Other grains have been found to cross react to gluten and milk protein as well. If you get exposed to those foods, those similar to gluten, you can still see gluten antibodies show up.

For those people that have been completely gluten-free, grain-free, dairy-free, it's a very strong possibility if you've been very diligent and reducing your exposure to gluten, you may get a false negative test.

Okay. Gina. **Is there a difference between IgG food sensitivity and IgG-4?**

Is there a difference between food sensitivities with IgG and IgG?

Is there a difference between IgG food sensitivity and IgG-4?

Immunoglobulin G is the antibody that's being checked. There's different ways to measure it. I don't know the difference in sensitivity or specificity or reproducibility between one or the other. That's the best I can answer. Ultimately, it's a delayed food sensitivity reaction.

Okay. Patrick. Should you be eating the foods you want? Sorry. Okay. Okay. Jonalyn. **People say SIBO or candida can be the cause of food sensitivity. Which one is the culprit? SIBO or candida if you believe it?**

Okay. For sure, SIBO can absolutely cause food sensitivities because it completely impacts the immune system and the immune tolerance. When you get a bacterial overgrowth in the small intestine, those bacterial overgrowth that then release gases also create an inflammatory brim in the gut that opens up tight junctions. You can definitely upregulate the immune system.

With that question, people that have small intestinal bacterial overgrowth that have reactions to food that are not just antibody-based, they set the structure of losing their tolerance where they also then get an addition to not being able to digest sugars and starches from the bacteria that's in the small intestine into causing things that can test permeability lots of times with antibody reactions to foods. Candida is secondary to something else. The concept of having candida, you should always ask. Candida is secondary to what? Candida itself is not going to cause any food sensitivity by itself.

Now, there are some foods that can cross react with candida antibodies. If you're reacting against candida because you have an overgrowth and you have high levels of candida antibodies, you may be more reactive to yeast proteins because of cross reactivity. There's some degree of cross reactivity. For the most part, you always want to investigate. What's the cause of candida in that scenario? Okay. I think I answered that.

Okay. Suma. **Is there an old fashioned way to test for food sensitivities without going to the lab?**

There is an old-fashioned way to test for sensitivities. It's actually the gold standard. The gold standard meaning the most effective way to look for food sensitivities isn't actually a lab test. It's actually elimination provocation. You eliminate the food protein for three weeks and then you add it back in. This is a really good way if you don't have access to lab test and you are suspicious about certain foods, of what kind of diet you should have. The easiest way to learn about this is just go online and follow the guidelines of something like the autoimmune Paleo diet.

The autoimmune Paleo diet really does a great job of removing foods that are very reactive. I have articles on this on my website, Dr. K. News. When you look at the autoimmune Paleo diet, you're removing gluten, dairy, all grains. You're removing what are called nightshades. Nightshades are foods that have very high lectins. You're also removing lectins. Foods that have seeds like tomato, eggplant, potato. When you go off those foods for three weeks, first thing you want to determine is do you notice your symptoms go away? Do you notice your swelling go away? Do you notice inflammation go away?

Do you notice your joint pain go away? Do you notice your brain fog go away? Do you notice your energy improve? If the answer is yes, you can't do it within two days. After three weeks, then there's something that you're reacting to. What you want to do is add in one food protein

every three days to see if you get a reaction. The first food protein you add in first will give you the biggest indication of whether you react to it.

Part of the reason is because when you've gone off these reactive foods that you have withdrawn from your diet for three weeks, your mast cells and your immune cells are just swollen and ready to go. They haven't been used. You can have actually a more severe reaction than you've ever noticed to have food protein after an elimination diet. Don't misinterpret that. That the elimination diet has caused you to now see if you really react to the food. It's just because it's the first one you put in after taking a big break from the immune system. Over time, it's going to go back down to the other one.

The first two or three foods you add in will be the most sensitive foods. Those are strategically really think. What do you want to add in first to rule that you're not suspicious about? As you keep adding your food proteins in, you tend to lose your window. It maybe after adding five or six foods back in, you may be all swollen and inflamed. You can't add in foods again to determine if they're reacting with you anymore because you're already so swollen and inflamed. You may have to go through another three-week period of time to see if that is an issue with you.

Elimination provocation diet, it really is one of the best ways to determine if you react to foods. Remember, the concept of cooked versus raw and have foods combined together. You could specifically react for example to one form of Tandoori chicken by one restaurant and not respond to another one because of the spices and foods they use and the food coloring that they use. Be aware of those concepts, too.

Okay. Annika. **If you clear SIBO, can you tolerate FODMAPs again? Will you always be sensitive? Can you look SIBO Facebook Live? Haven't you done a SIBO Facebook Live?**

No. I've not done a SIBO Facebook Live. Thank you. That would be a good topic. Small intestinal bacterial overgrowth is a complicated condition. It really involves dysfunction in the gastrointestinal nervous system or the valves aren't working. There's impaired motility from the majority of cases. You can get it from hypochlorhydria. You can get it from surgery, from genes and anatomy. For the most part, the gut nervous system, which control valves isn't working. Bacteria from the large intestine move into the small intestine because these bowels aren't working.

You get these bacteria that are very reactive to sugars and the starches. This is why people going with the FODMAP diet, which is a diet where you avoid fructose and oligosaccharides and disaccharides and monosaccharides and polysaccharides has the word FODMAP with all those basic sugary foods that feed that bacteria that is in the small intestine. That causes bloating, distension and inflammation. If you can figure out the cause of SIBO, you eliminate it, then fine. Then you don't have to be on a FODMAP diet.

If the bacteria from the large intestine stop moving to the small intestine, you don't need to be on a FODMAP diet. Most patients cannot resolve it. The recurrence rate, even with conventional therapy where they use antibiotics and what are called prokinetic drugs to

improve intestine motility is very poor. It's almost like 90% reoccurrence. It's pretty complicated. Actually, we probably should do this on a separate talk.

The concept is if you don't have bacteria going from your normal healthy bacteria from the large intestine, translocating into your small intestine, you have no further need to be on a FODMAP diet.

Okay. Monique. **If you tested negative for Celiac but are found to have gluten sensitivity, can you still experience symptoms of Celiac such as unexplained weight loss?**

Yes. The question is if you have tested negative for Celiac disease but positive for gluten sensitivity, can you have as severe reactions?

Can you still have symptoms-

Can you still have symptoms? Yes.

... Of Celiac and weight loss.

Yes. Yes. Gluten sensitivity itself is much more severe than people have thought. This may be 15, 20 years ago, the gastroenterology literature would be if it's not Celiac disease, gluten cannot do anything. You have to have the genotype. You have to have this HLA-DQ2 at eight. You have to have a positive biopsy. If you have all those things combined together, you have Celiac. That's a one-time gluten can be an issue. That was maybe what they thought 20 years ago. Now, what they found is that's not accurate. Gluten sensitivity itself is a significant, very inflammatory condition.

What they've actually found is that gluten sensitivity not Celiac disease but gluten sensitivity causes significant brain inflammation in large subsets of populations. Several studies have shown this. If you're sensitive to gluten, you can have significant inflammation throughout your body. Symptoms like weight loss and headaches and chronic inflammation basically the gamut of things. You have chronic inflammation. It doesn't have to be Celiac. Now, if you do have actual Celiac disease, you have a significantly different immune response to gluten.

What happens in actual genetic genotypes of Celiac disease is that there is a very specific exaggerated response for the T cells that cause significant inflammation and destruction of intestinal lining and increase the risk for autoimmune disease dramatically. Celiac disease is much, much worse because it has an overactive T cell response. Gluten sensitivity will create inflammation throughout the body and cause all those to diverse symptoms unrelated to Celiac.

Okay. Jonalyn. **You mentioned that one of the causes of increased gluten sensitivity could be due to increased histamine in immune system. Can increase in our DAO help? How can we test DAOs?**

The key thing to remember with DAOs, you're really dealing with DAOs and enzyme that helps break down histamine, by the way. People have used that supplement to help them with histamine reaction. You can measure DAO levels with lab tests. The key thing with DAO is you're really dealing with allergens, with IgE and not necessarily food sensitivity. You can have very

little effect dealing with food sensitivities that are IgG, IgM or IgA mediated with any kind of DAO supplement. Be aware of that.

Low histamine diet is not going to have much of an impact on people that have multiple food sensitivities because the immune response is just histamine with delayed reactions. The true classic allergy, IgE can react to things like dust or pollen or even foods. That's for antihistamine, DAO. What's also really effective is Quercetin as a flavonoid. That can really help quench that histamine response. Just DAO pathways and histamine-free diets are really more specific for people that have an exaggerated IgE mast cell response, which is a different immune response in food sensitivities. You can have both, by the way.

Okay. Perfect segue. Magda. **What's the difference between IgG, IgM, IgE, IgA?**

What's the difference is that there's different shaped antibodies. These different shaped antibodies generally different immune responses. IgE is your classic allergy. It's an immediate onset response.

IgE like elephant.

IgE like elephant. Thank you. E as in elephant. IgG as in goat, IgM as in maple. IgA as in apple.

Okay.

Those are delayed. They take longer to respond. Those are involved with food sensitivity. IgE is your mast cell histamine, DAO pathway. Food sensitivity, IgG, IgM, IgA is your delayed slow chronic inflammation pathway. That isn't as strongly dependent upon histamine and mast cells.

Okay. Shelby. **What is the best way to tighten back up junction?**

What's the best way to tighten up intestinal junction?

Yeah.

This is a question everyone has. In a clinical setting, trying to figure out how to help heal patients leaky gut. By the way, we just are finalizing the first draft of the new book on leaky gut that goes through all the research and everything on it. It's pretty complex. It really depends on what's the mechanism of leaky gut. You could have intestinal permeability because your diet's bad. You could have permeability because of an infection. You could have intestinal permeability because you have hormone deficiency. You could have intestinal permeability because your microbiome is not diverse.

You can have chronic intestinal permeability because you don't have healthy immune tolerance. At the end of the day, you really have to find what the underlying mechanism is. The simple model you'll find all over the internet and everyone talking about is you have to go on a set of supplements usually high amounts of L glutamine to heal your gut. If you go on a gluten dairy-free diet and take some glutamine, then that should help heal your gut. For some people, that is true. For other people, it's more complicated. You have to treat leaky gut from a whole person approach.

What are all the factors that are causing inflammation? Because all the factors that cause inflammation can actually break those tight junctions. For example, people that are diabetic and have uncontrolled blood sugar and glucose levels that get oxidized with high glycated hemoglobin blood test. That glycated hemoglobin will break down their tight junctions. In that scenario, you can take all the glutamine in the world you want. Unless the blood sugars come down, the oxidation of glucose doesn't come down by controlling their diabetes. They're not going to be able to resolve their intestinal permeability.

That's the real answer. How these things are. The basic answer you can hear all over the internet is take a bunch of nutritional goals, L glutamine, probiotics and get off some inflammatory foods. That will help some benefits to some degree but it may not be enough to correct if there's underlying issues that are causing it.

Okay. Nina. **What do you think of Viome microbiome testing that tells you what foods are best or worst for your system?**

I think Viome microbiome has a long way to go. I think there's some big assumptions that they're making. I don't think they're there yet. With their technology and the models that they're portraying.

Okay. Sean. **If one has diligently avoided gluten, soy, casein and albumin for years but still test positive for all four via SIgA, what does that mean?**

If you avoided all those food proteins diligently for all those years and your results showed positive, it's very likely one of two things. You had lab error. The lab that ran your test gave you the wrong results. It's worth repeating. The other possibility is you're getting trace exposures that you may not know about. Trust me. There are trace amounts of some of these food proteins that may not be on labels of ingredients. You could be for example eating I don't know, veggie burgers. Within the veggie burger, there's trace amounts of these proteins and how they configure.

Too small of a dosage to list on the ingredients label but you're still getting exposed and causing these inflammatory reactions. If you retest with the lab and you see it's still positive, then you can rule out that it's not lab testing error. You may be getting exposed to food proteins that you're not aware of. A lot of processed foods, especially vegetarian food has this egg, soy, milk and wheat as proteins in their ingredients that are very subtle. Be aware of that. That's what I've seen in my practice all the time. Okay.

Okay. Pria. **Can one follow the AIP diet if they don't eat meat? If they're not a meat-eater? Not vegan but not a meat-eater?**

Can you follow the autoimmune Paleo diet if you're not a meat-eater?

If you're not a meat-eater. Yeah. Pria.

Vegetarian.

Vegetarian, yes.

Okay.

I'm reading the cue.

I know. I know. I'm trying to process it myself.

Not vegan, vegetarian.

Okay. It's going to be extremely difficult. Because when you get rid of lectins and you get off grains, it's going to be very hard to get some complex proteins. Yeah. I think you're going to find that it's not going to be very effective. You're going to struggle with it. Food protein sensitivity the least antigenic protein for dealing with what the scenarios are. There's a point like you see with patients with autoimmunity and chronic inflammation. They go autoimmune Paleo then they go vegan and then they go vegetarian and then they go into histamine. They have nothing to eat.

Their microbiome diversity goes wrong. They don't know what to do. There's a point you have to settle with something. I think when you start going on autoimmune Paleo and adding things on top of that, you're going to make an extremely difficult to get proper nutrition and proper protein intake. Let's just say that's my observation.

Okay. Brad. **Have you ever seen someone not react to gluten and dairy on lab tests?**

Yes. There are people that do not react to gluten and dairy. I know it's hard to believe for those of you with chronic diseases but people don't. People that have chronic autoimmune diseases, chronic inflammation, chronic inflammatory conditions typically do. There are people that do not react. Not everyone is sensitive to those food proteins. That is true.

Okay. From Genevieve. **Not to be controversial. Why are genetic modified foods bad? There are lots of disagreements in scientists about this.**

Yeah. Sad to say that all genetic modified foods are bad or good. That's not the issue. I think you don't want to make it black or white. When you genetically modify food, you change the protein structure. That protein structure change for some groups, for some subgroups may make it more reactive than others. That's the concept of immunology is we tend to have some degree of immune sensitization, immune tolerance to environment to proteins our immune system is used to dealing with. The term they use in immunology is neoantigen. New antigen.

Neoantigen to the species just like a new virus to the species tends to potentially cause higher degree of inflammation in some subgroups but not everyone. With people that typically have autoimmune disease, they just realize they can't eat things like soy or corn. They don't need a lab test. They eat it and they fall apart. It's not about the entire population but for their uniqueness, for themselves, they see there's something wrong with it.

I remember when I was out of school and in my 20s, late 20s and I was working with chronic patients, even form then just because there's so many of them around. Not because they have the knowledge that they work with them but they desperately need help. I was willing to listen and try. These patients would come in with zero doubt. They cannot eat GMO foods because

they would react to it. They would bring in their own food because they knew that after the appointment, they need to get lunch. There's no way they can eat out. They just couldn't eat processed foods.

When people get some significant degree of inflammation, illness, they can't handle it. The most common foods people can't react, that have reactions to tend to be if you're working, if you go into an office with autoimmune disease patient, you start asking them. Hey. What foods have you really noticed cause a problem for you? You're going to see soy right up there with corn. You're going to see wheat, milk, egg protein and lectin foods, lectin and nightshades. It's not about a controversy.

It's just that GMOs change the structure of the protein and new antigens for sub groups especially those that have lost tolerance tend to be very common. Sure.

Okay. This is from Maggie. There's quite a few of these questions.

By the way, when you take a whole population of people and do a study where you have people that don't react to GMOs and only have a small person react when you do actually do the stats, it looks like there's no effect. That's why you have to have some group analysis. I'm sorry.

That's okay. Okay. **Do you believe in muscle testing to find food sensitivities?** There's a lot of different variations of that question but that's the basic.

Yeah. I think of the word science, the word believe is always a bad word. The best question is do you have evidence for it? Do you find it clinically useful? Those are the kind of things that are there. I understand the word believe. It's the term I use myself, too. Just to clarify the appropriate question is there evidence for it? I think it's very controversial topic. I have some experience like kinesiology myself when I was first in school. You can definitely see muscle testing changes for various reasons. You could have people think of various thoughts of muscle tests that can change.

It can have an impact in muscle testing functions. I think for some people, in some scenarios, they're going to guess one thing or another. If it's just pure guessing with one thing or another and you exhausted labs or it's not even an option. Then maybe that can give you some information to it. I know there was a paper that was published by Wally Schmidt a few years ago. It was posted in International Journal of Neuroscience where they found a degree of correlation with a competent person that did that. That's an expert level person. Study participant is doing it. There's a lot of factors there.

I could say from a scientific evidence, they have not established that. That's not the world of clinical practice. Sometimes, there's an anecdotal things that may provide some use. That's the best I can do to answer it.

All right. **Do you think the GAPS diet is useful for hearing leaky gut?**

Do I think the GAPS diet? Yes. You can do things like a GAPS diet for leaky gut. Some people are not going to respond because if you don't find the cause or trigger, that can fix leaky gut just by a diet or a nutraceutical. You're going to have to fix leaky gut but try to figure out what the triggers are. If your triggers are just food, you're eliminating and you add in changing diet and the results, that's great. For a majority of people, it won't be that simple.

Okay. **Can hypoglycemic-like symptoms be tied to food allergies?**

Can hypoglycemic-like symptoms be related to food allergies? Hypoglycemic symptoms are shaking, lightheadedness, irritability. Of course, it's possible. I don't know. I can't tell you what the logical mechanism would be. If a patient came into my office telling me that, I'd have to really think about and dissect what they're referring to as hypoglycemia symptoms and work my way backwards. I'm sure it exists for some people. I just can't tell you in this Q&A if I know what's causing it.

Okay. Marcia. **This is a common question, too. How does one go about eating a diverse diet when there are only three foods that are tolerable?**

This is something we talked about in our immune tolerance program, 3D immune tolerance program. When you actually lose immune tolerance and you test for food sensitivity and test for every food, you can't just eat those three foods. You're going to actually make yourself worse. You're going to lose your microbiome diversity. As a clinical example, let's say someone comes in that had multiple food sensitivities on a panel. We test let's say 200 foods and more than 50% of them have a reaction.

If we just have them eat the foods they don't react to and follow up testing with them in about three to four months, all the new foods they're eating, they're going to have sensitivities to. They'll have more and more food sensitivities. If you only limit to three foods, you may have gone through that because what happens when you do that. At that point, what you have to do is you have to look at foods. When you lose your immune tolerance, you run into everything. Remove food protein. What you may need to do is really look at strategies to improve your dendritic cells. Things like leaky gut.

Improve your IgA levels. Also, you have to eat foods. You have to eat the foods you don't react to. What I'll do in my practice if I see a person react to everything, is I go, you're going to have to eat a diverse vegetable diet. We encourage them to eat all their vegetables in a diverse fashion. Eating a lot of diverse vegetables. I avoid foods that have nightshades or lectin. Foods or vegetables that have lectin are nightshades because they're so inflammatory for those people that are chronically inflamed. They've lost their tolerance.

If they don't have any symptoms, for example, they may show up with carrots or brussel sprouts. When they eat it, they don't notice anything. It's showing up on the lab test. At that point, it's important just for them to eat it and as many other vegetables as they can that are not nightshades or lectins to really improve their microbiome diversity. To then change their immune tolerance so they can start working their way out of being so sensitive to foods. This is

the whole concept of immune tolerance. This is why I created a program for it. Because everyone is just fixated on leaky gut but it's not that simple.

If you just focus on leaky gut, you can't trim this around. The concepts of the immune tolerance that I put together in the program is 3D diversified, distinguished and down regulate. Again, you can go to Dr. K. News. We have articles and online program about that. Okay.

Yeah.

One last question.

Okay. From Rebecca. **Other than gluten and the cerebellum, are there specific food antibodies that have cross reaction to specific areas of the brain?**

Yes.

Okay. Done. Just kidding.

There are food proteins that have reactions, yeah. The paper that we published in *Journalism of Diabetes Research*, we looked at GAD65. GAD65 is one of the main auto antibodies in the basic angle in the cerebellum. You can go to PubMed, National Library of Medicine. If you type in my name and then look up paper on Polyclonal monoclonal antibodies, the thyroid access, we list those food proteins. That's really common on the target side for chronic anxiety and what are called basic disorders. You might want to check that out. Wheat, germ and gluten, strongly cross reactive to different proteins in the brain.

Gluten is significantly cross reactive to cerebellum like I talked about. We published a paper in the *Journal of Nutrients* back in 2014, I believe where we looked at milk protein being significantly reactive to myelin. I think those are the main factors that we know about so far. Anyways, I hope you found this useful. I hope you can enjoy these as we do them. Thank you for your time. Thank you for joining us today.

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