LIVE TO 110 with Wendy Myers

EPISODE #166

GLYPHOSATE PESTICIDE & HOW TO DETOX IT
WITH DR. STEPHANIE SENEFF

In this episode...

Wendy Myers: Hello, everyone. Thank you so much for joining the Live to 110 Podcast. My name is Wendy Myers, and you can find me at Liveto110.com, and learn about my detox and healing program, MineralPower.com. It's where I mineralized your body and detox it of metals and chemicals because those toxins interfere in your body's metabolite function in so many ways.

It doesn't matter what your health condition is, what your disease label is. There's always an underlying mineral deficiency and heavy metal and chemical toxicity that's exacerbating that condition, or causing it outright.

Today, we have a very, very important podcast. I have. Dr. Stephanie Seneff on the show to talk about glyphosate, and how that disrupts your hormones, disrupts cholesterol metabolism, disrupts your liver's ability to detox your body, how it disrupts gut bacteria and causes so many different health conditions, including autism, dementia, ALS, and so, so many others.

And it's a huge health crisis. This is probably one of the most important podcast that

I've done. The underlying tag line for the show should be, "Say no to bread" because glyphosate is used so much in wheat, and wheat has so many various issues.

But unfortunately, all food that is not organically grown is sprayed with glyphosate. Glyphosate is a weed killer. It's what used on all the non-organic produce. It's sprayed in all of the parks to kill weeds. It's so ever present in our environment.

It's in the water. It's in the rain. It's in the vegetables, the fruit, the bread, the grains. It's in so many things.

And we're going to talk about how you can avoid glyphosate to the best of your abilities, and how to detox glyphosate on the show today.

Please keep in mind that today's show is not intended to diagnose, treat or cure any disease or health condition, and is not a substitute for professional, medical advice. Please keep in mind this podcast is for information and entertainment purposes only. Please consult your health care practitioner before engaging in anything that we suggest today on the show.

02:37 ABOUT DR. STEPHANIE SENEFF

Dr. Stephanie Seneff is a senior research scientist at MIT's Computer Science and Artificial Intelligence Laboratory in Cambridge, Massachusetts in the U.S. She has a B.S. degree from MIT in Biology and a Ph.D. from MIT in Electrical Engineering and Computer Science.

Her recent interests have focused on the role of toxic chemicals and micronutrient deficiencies, and health and disease with a special emphasis on the pervasive herbicide, RoundUp, produced by our lovely Monsanto and the mineral, sulfur.

She has authored over two-dozen peer-reviewed journal papers over the past few years on these topics.

Dr. Seneff, thank you so much for joining us on the podcast.

Dr. Seneff: I'm delighted to be here. Thank you for having me.

Wendy Myers: Well, why don't you tell the listeners a little bit about yourself and your background?

Dr. Seneff: I've been at MIT all my adult life. I went there, undergraduate, got a biology degree at MIT, and then MSEE and Ph.D degress in Electrical Engineering and Computer Scienc at MIT. And then I've worked at MIT ever since then.

So MIT born and bred. A wonderful place, and I have to say they've been very supportive of my recent research, which has been somewhat controversial.

MIT is a very liberal place, and they are willing to allow people to do research that is otherwise often restricted. So I'm grateful for that.

Most of my career, I was working on building spoken dialogue systems to allow humans to have a natural interface conversation with a computer. So a lot of work with speech recognition, language understanding, dialogue modeling, and all of that stuff.

I got into using dialogue systems to help a person learn a new language by playing games on a computer.

So I really had a lot of fun doing all of that.

Nine years ago, I was getting very worried because I was looking at the autism trends in the United States, and I was seeing exponential growth in the pattern. And exponential growth is a very scary thing, and I know that.

I was concerned because it looked like most of the research dollars were going towards genetics, looking for genetic causes, and they're finding all kinds of genetic links, many, many genes that if you have a certain variance, you have a certain increased risk. But everything is very small. E

fillings in mom's teeth, and fluoride, and [PCB's], and all these different things, and really, coming up short.

I could explain part of it, but there were big parts of what autism was about that I couldn't explain with some of the chemicals I was finding.

It was really very fortuitous four years ago that I had a chance to hear a two-hour presentation by Professor Don Huber, who is retired. He's 80 years old, I think. He's a retired professor from Purdue, and he has had an illustrious career in plant physiology and plant pathology.

In his lecture, he made a case for glyphosate. He said glyphosate is a sleeper. It is a much more toxic chemical that we realize. It's all over the place, and it is causing a great deal of disease, particularly related to gut dysbiosis.

And he explained how that could be true.

So he was drawing an analogy between the soil bacteria and the gut bacteria, and he was seeing the phenomena going on in the soil, and he was seeing all these kids with all these different gut problems, celiac disease, of course, inflammatory bowel disease, leaky gut, various problems with diarrhea and constipation, belly aches, all kinds of food issues, food allergies, all kinds of stuff, clearly, trouble with the gut.

And he suspected that glyphosate was a major causative factor in it.

And that was a big piece of the missing puzzle for me with the autism. I couldn't explain what was causing it. I knew they had trouble with their gut, and I was thinking maybe they we retaking too many antibiotics, getting too many ear infections. I was struggling.

And this just handed the answer over to me on a silver platter.

So I was really excited. I heard that two-hour talk, and I never looked back. I basically dropped everything I was doing. I didn't even know the word glyphosate when I walked into that talk. It's really truly amazing. And now, I've just about read every paper I can find on glyphosate, a really, really interesting chemical biologically. Really interesting.

It's just so fascinating, devastating and incredible. Really incredible. Very insidious effect that it has on our biology to disrupt everything. It's truly amazing. And I'm very blessed to

have been able to interact with a lot of really smart people, and we are writing papers researching, and trying to articulate our discoveries as best we can to get the message out that this chemical needs to be banned.

It needs to be removed from the earth.

Wendy Myers: I first heard about glyphosate from you, actually. I was doing a podcast and mind blown. I'm so thrilled to have you on because this is such an important message that you need o get out to the world. It's frightening.

08:10 GLYPHOSATE

Wendy Myers: Why don't we tell people what exactly is glyphosate, and why is it such a concern for our health?

Dr. Seneff: Glyphosate is the active ingredient in the pervasive herbicide, RoundUp, which you can very conveniently going down to your local hardware store, buy some RoundUp, and spray it on your dandelions, to control the weeds in your yard.

So it's very unregulated. Anybody can buy it, no license required. And of course, they use it enormously on the food, especially in this country.

The key thing that happened to really make the autism epidemic take off, in my opinion, was the introduction of the GMO, RoundUp, for every crops. And this was a fabulous success in the late 1990's. They figured out how to insert bacterial gene into the crop, so that the crop wouldn't die when it was exposed to RoundUp. Otherwise, RoundUp kills all plants.

So something that kills all plants, you've got to think that's got to be toxic. And so to say, "Oh, yes, kills all plants, but it doesn't harm us at all," very suspicious.

So they put this bacterial gene into these core crops, the soy, corn, canola, which is canola oil, beets, which is beet sugar, and the beet sugar is a pretty large proportion of sugar that we buy as beet sugar, alfalfa, cotton, which is interesting because cotton products are showing up with glyphosate contamination, including tampons, which is very worrisome to me.

And tobacco. Tobacco, cigarettes are bad for you. Well, how much is it, with glyphosate in the cigarette, that's causing the health issues associated? How much of it is due to the glyphosate? I don't know. But something, I'm sure, some part of the cigarette, toxicity is due to the glyphosate that's in it.

So they introduced all these crops, and it was fantastic. They could grow these crops really cheaply. Just fly an airplane over the crops, spray the crop, really, with glyphosate, and kill all the weeds. The crop, unfortunately, takes the glyphosate up, and incorporates it into its own tissues.

So it's not like you can just wash it off. It's there, and it's integrated into the tissues of the crop, and into your foods themselves.

This is the part that's really disturbing to me. And we're not positive this is true, but the evidence is really strong.

And Anthony Samsel and I have been working on this angle of it, this incorporation into the proteins. Any anyone who is exposed, a plant, an animal, a microbe, all of them have the chance to incorporate glyphosate into their proteins.

This is what's causing all these allergies that we're saying, to all these foods. Of course, we've got soy allergy, we've got corn allergy, we've got wheat allergy. Wheat is not GMO, but it's sprayed with glyphosate right before the harvest. More and more lately, that's become a popular trend.

So wheat contains glyphosate, incorporated into the protein, and that's what's causing the wheat allergy that's like celiac disease and gluten intolerance. And all these grocery stores now have these wide sections of all these gluten-free products to choose from, which was hardly even known about 10 years ago, the concept of gluten-free.

And so many people now can't eat wheat. And of course, milk is the other one, casein intolerance. Milk allergies, casein is a protein in milk, and cows are exposed to huge amounts of glyphosate in their feeds, so they get it into their milk.

A peanut allergy is another one. Peanuts are sprayed with glyphosate before harvest also sometimes.

I think all these allergies can be explained by glyphosate.

Wendy Myers: Yes. And it's frightening because not only do the crops are sprayed with glyphosate when they're harvested, then they're sprayed again as a desiccant to dry them out. They're just getting pummeled, with food that's not organic.

It's frightening. I've read another article about even fruits. So many fruits, even if they are sprayed with the RoundUp Ready to kill weeds, it's sprayed on them to dry them out, so they last longer. That's just on so many foods.

Dr. Seneff: I was really surprised that it was in fruits. And in fact, Suzanne Honeycutt tested, I think, 12 different wines in California, and glyphosate contamination showed up in every one of them, including the wines that were biodynamic.

We're not using glyphosate to control weeds, but it's in the water, it's in the rain. You can't avoid it. It's probably in whatever they use for organic fertilizer because you don't get organic cows for the fertilizer that you use in organics.

So you've got glyphosate in organics. You can't avoid it. But it's considerably less from what I've seen. There hasn't been nearly enough testing of the food. That's something that was almost not done at all.

It's amazing. It's by far the most used herbicide on the planet, and certainly, in this country. And our government is so convinced that it's harmless, so they don't see any reason to test for it, which is just so crazy.

So it's been under the radar. People see problems with the insects, with the bees, the bee colony collapse and the monarch butterfly. The birds have this crazy beak overgrowth thing where the chickadees died because their beaks were so weird, they can't eat.

All of those things, I can tie them very easily to glyphosate, as a component. So there are neonicotinoids killing the bees, but glyphosate makes the neonicotonoids much more toxic because it disrupts the liver's ability to detox it.

And that's true for many toxic chemicals.

So glyphosate makes many other chemicals much more toxic than they would otherwise be, which is really deadly synergistic toxicity.

Wendy Myers: Yes, and that's something that's not really being studied as the potentiation of chemicals to make one chemical much more toxic when two chemicals are combined. So that's a very interesting conversation.

Dr. Seneff: It's amazing. We have multiple chemicals that we're exposed to all the time, and essentially, none of the studies have looked at any two in combination. All the studies are done in isolation. So it's crazy that they're not worrying about what might go on as the interaction between these various chemicals.

It's got to be much, much worse than the individual chemical because each of them can cause the other to be more toxic because of the way it affects the biology.

14:20 AVOIDING GLYPHOSATE EXPOSURE

Wendy Myers: Let's talk about some of the foods that people need to be avoiding that are likely contaminated with glyphosate. We touched on some. Let's touch on organic food, and why that's preferable.

Dr. Seneff: Certainly. That's what we've done. When I first started glyphosate, we were started buying organic, but keeping our old stuff, thinking we'll use that up, and then replace it with organic.

And then we got to a point where we started just pitching stuff. It's like, "We're not going to keep this. This is not organic."

We've gotten so strict in this household. We buy organic spices, organic beer, organic wine, everything is organic.

I would encourage anybody listening to do the same. I think it would be a very wise choice. The extra money that you spend on food, you will get back in spades on the health issues you don't get down the road because it's an insidious toxin that gradually erode your health.

You wake up someday with something like Crohn's disease, or Alzheimer's, or Parkinson's disease, or rheumatoid arthritis. All these things you don't want that you're going to get if you keep on chronically exposing yourself to glyphosate.

You're going to get one or the other of these, depending on your biology, depending on what else is going on in your body, and different things, but nobody escapes from being sick if they get chronic exposure to glyphosate.

So you can do yourself a big favor and your family by eating everything organic. I believe that's a huge first step, but it's not enough, it turns out, because there are other ways you're getting exposure.

I mentioned the cotton. We need to start thinking about organic cotton clothing, organic cotton pampers, diapers, because you think of putting cotton on the baby's skin, diaper rash. The kids are having epidemic in eczema, is that due to glyphosate in the clothing? I don't know. No one's studied it. No one's even thought of it.

In South America, they tested cotton products, and that's where the found it in tampons. They found it in sterile cotton gauze.

So imagine an open wound, and you're putting glyphosate into it. It's really very disturbing.

I think it's also in drugs, in vaccines, because no one's making any attempt to make sure that it's not there. And it's so pervasive.

You think about a vaccine like MMR, which of course, MMR has been linked to autism. There's a lot of controversy about that. There's a movie called Vax that talks about a CDC whistleblower and issues of the CDC using some corrupt activities to suppress the fact that MMR was linked to autism.

MMR is a live measles virus is grown on gelatin. The gelatin is sourced from pigs, from the ligaments of pigs. The pigs are fed a heavy dose of glyphosate in their feed. And the glyphosate would accumulate in the collagen, which is the precursor to the gelatin because collagen contains tons of glycine.

And in our studies, what Anthony and I are showing is that glyphosate substitutes for glycine by mistake in the protein. So you can anticipate the measles virus is going to incorporate the glyphosate that's in the gelatin, into its own proteins, which is going to produce a version of hemagglutinin, and that's very hard to break down because the glyphosate makes the proteins resist the ability to break them down.

And that's how you get very, very strong immune reaction because you can't break that protein down. The vaccine is looking for antibodies through hemagglutinin, and that's considered a success. That's what you need to do to be protected from measles.

But the autistic kids get way, way too high levels. They've shown that autistic kids have super high levels of antibodies to hemagglutinin. And then they also have autoantibodies to [mine] basic protein in their brain.

So they're getting their brain on fire, which is inflammation because their immune system is attacking the nervous fibers in their brain due to molecular mimicry because there's a sequence in there that matches the hemagglutinin.

That's a lot of science, but it's really, really interesting stuff.

Autoimmune disease, so many different autoimmune diseases are going up dramatically right now in this country, and I think glyphosate is playing a major role in every one of them.

Wendy Myers: I really identify with what you're saying with the MMR vaccine because when my daughter had that, she didn't talk for a year.

Dr. Seneff: Oh, my god. I didn't know that.

Wendy Myers: Yes, she had an autism diagnosis. She was speaking in two-word sentences until she was three years old. She was speaking, but she was not progressing in her language. And she was ahead of the curve prior to that.

It's a long road, but now, she's a lot better and totally normal-functioning, but it's amazing the [convo] you're talking about, the vaccines and the glyphosate, and the potentiation of those, the toxic ingredients in the vaccines, and the aluminum and whatnot, and glyphosate that's in them.

19:17 GLYPHOSATE, ALUMINUM AND SLEEP DISORDER

Dr. Seneff: We've written papers about that as well—the connection between glyphosate and

aluminum because glyphosate is a major metal chelator. Aluminum is a major metal, and so glyphosate binds really tightly to the aluminum and carries it into the brain stem, and delivers it at the pineal gland because in the acidic environment, it lets it go.

The pineal gland is in the more acidic environment, so that glyphosate delivers, hands over the aluminum to the pineal gland, messes up the pineal gland, and causes sleep disorder because that's [without] melatonin.

But then that also causes all kinds of other problems that go with the sleep disorder. So we have a major epidemic in sleep disorder. All these people are taking different kinds of sleeping pills. And it's associated with all these neurological diseases like multiple sclerosis, Alzheimer's, autism, ADHD, depression.

They all are associated with sleep disorder problems. So I think all of that is going on with the aluminum and the glyphosate. And we're just crazy with the amount of aluminum we put into these vaccines.

I'm so upset about the Gardasil vaccine. They're introducing this new vaccine for the teenagers. If they manage to get past the early years, and still intact, and now, they're 11, 12 years old, they get hit with the Gardasil vaccine, three shots in a row.

And the original Gardasil already had a very toxic form of aluminum. They had come up with this new formulation for aluminum that's more effective. Aluminum is an adjuvant that makes the vaccine take better.

So if you make the vaccine take better, that means you're going to encourage more autoimmune disease, just like you do with the MMR. The more you get a vaccine that you're reacting to, the more chances you have to develop an autoimmune disease through molecular mimicry.

And that's what's going on with Gardasil. There are some really awful reactions the girls are having, boys too, to Gardasil.

The Gardasil also had only three strains of the HPV virus in it, originally, the top three strains. [We do] have a 90/10 rule. But what happens is when you immunize against those three, there are over a hundred stains of the virus out there.

So now, the other 97 can have a field day. Somebody else comes up and starts growing, and it might be more virulent than the ones you have gotten rid of.

So people started getting cervical cancer at a very young age, following the Gardasil vaccine. They're getting the very thing the vaccine is supposed to protect them from, from some strain that isn't in the vaccine.

So that solution is Gardasil 9. This is the new form, twice as much aluminum, nine different strains, and still, there are over 91 strains out there ready to go. This is a game we can't win. The whole concept of individually immunizing you against specific strains of specific bugs, so if you get 60 vaccines, so that's 60 different strains, and some of them have multiple, so maybe it's 150.

There's a whole bunch of viruses out there that you didn't touch. You're still vulnerable to those things, things like AIDS, things like the Lyme disease, Borrelia. All these things are still out there, ready to attack you. You can't vaccinate against them.

Wendy Myers: Yes, and I wrote an article about those called Vaccinations Cause Chronic Immune System Dysregulation and talking about when people get vaccinations, they improperly simulates our immune system. And they're more likely to get autoimmune disease, cancer, and anything your immune system protects you against is now weakened.

Dr. Seneff: That's absolutely true. The autoimmune disease is a huge thing. And that's what I think the vaccines are working synergistically with the glyphosate to cause this epidemic in autoimmune disease.

And what I'm talking about is things like Crohn's disease, celiac disease, inflammatory bowel disease, rheumatoid arthritis.

Of course, all these brain diseases are really autoimmune, autism and Alzheimer's, Parkinson's, ALS, Lou Gehric's disease. These are nasty, nasty diseases that have an autoimmune component that I think is being driven by the combination of all these vaccines, and all the toxic chemicals in them with the glyphosate, which is setting you up to be susceptible to those.

It's really, really a very, very deadly combination.

23:27 HOW GLYPHOSATE DISRUPTS HEALTH

Wendy Myers: How does glyphosate work exactly to disrupt our health? What are some of the health issues? You mentioned some.

Dr. Seneff: So I've mentioned, of course, the gut microbes, and that's where it starts. Of course ,now, there's actually a lot of [neat] research going on, on the gut microbiome. It's a hot topic right now in research, and it's wonderful how many new papers are coming out, enormous amount of information where they all these complex analyses of the microbiome amass.

So looking at all the different proteins within not the individual bacteria, but the whole complex and which proteins are expressed. And they can get interesting information about different diseases and what's associated with what.

They found, for example, that lactobacillus reuteri, R-E-U-T-E-R-I, seems to be protective against autism. And so that really caught my eye.

And then I looked up, and I found out it makes cobalamin, and cobalamin deficiency is linked to autism. [That's B-12], really important vitamin.

The bacteria in your gut make all kinds of useful materials for you that your body can't make. So we rely on them to supply us with these nutrients, really vital nutrients. And so B-12 is just one example, but they also provide us with other B-vitamins. They also provide us with the aromatic molasses, very essential.

These are essential amino acids that our cells can't make. They come out of the pathway, the shikimate pathway the glyphosate disrupts.

So if you're being exposed to glyphosate, your microbes get a blocked shikimate pathway. They don't produce the aromatic amino acids, and you get a deficiency in these crucial, crucial nutrients. Those are precursors to all of the neurotransmitters.

So we've got dopamine, serotonin, melatonin, also the skin tanning agent, melanin, thyroid hormone, all of these things come from the shikimate pathway, including folate.

We have a whole problem with folate these days. They're putting folic acid in their bed, which I think is a really bad idea. But folate is not being produced because it comes out

of that shikimate pathway. There's chronic exposure to glyphosate.

So the microbes are getting exposed. It also messes up the balance of the microbes. The lack of bacillus get preferentially killed. Those are the guys that need to get going when the baby is born. They're feeding on the milk, and they need to really flourish, so they can prevent the pathogens from growing.

But if they're getting weakened by the glyphosate, then the pathogens have a chance to overgrow, and you get this inflammatory gut because your immune cells come in and start attacking those pathogens.

Then you get a leaky gut, and now, you get various proteins escaping from the gut and causing all kinds of autoimmune diseases.

It's a terrible cascade of sequences starting with the disruption of the gut microbes.

And so that's one piece of it. And another piece I mentioned already, which is the liver [cyp] enzymes. They've shown in studies that glyphosate disrupts this really important class of enzymes in the liver. One of the things those enzymes do is detoxify a bunch of different chemicals, including drugs that you take.

For example, even acetaminophen, which is Tylenol, and they've linked Tylenol to autism. Tylenol can be very toxic if you can't metabolize it. But you need those enzymes in the liver that glyphosate disrupts to metabolize the Tylenol, so when you take Tylenol, and you don't break it down, it becomes much more toxic, and then it can cause autism.

So the liver cyp enzymes, and of course, that messes up the liver as well. The cyp enzymes are also essential for activating vitamin D, and we have a major problem with that in vitamin D deficiency today in the United States. They've discovered this within the past 5 or 10 years. And now, they're giving everybody vitamin D supplements.

The problem is the liver can't activate the vitamin D. That's why it's low.

And also the cyp enzymes are used to produce bile acids. So if the bile acids can't flow, all kinds of things don't happen, and the mineral distribution gets all screwed up. So we get a really big problem with minerals. Mineral become both toxic and deficient at the same time, and that includes iron, manganese, zinc, cobalt, copper, molybdenum, all of

those are really crucial minerals, which you need in very small amounts, but they're really important for certain enzymes that depend on them.

Your body has really sophisticated mechanisms for pushing them around because they're toxic. Just like oxygen, they're both toxic and essential. And we have these smart mechanisms but glyphosate is a train wreck for them.

So glyphosate holds onto the mineral and prevents our natural system from delivering it in a natural way. And then it will do things like carrying it into the brain stem and causing all kinds of trouble there.

Wendy Myers: Isn't that how glyphosate works? It chelates and grabs on the minerals in the plant, and removes them. And that's how it kills it. That's what it's doing to you too.

Dr. Seneff: That's right. It totally messes up the minerals, but worse than that is this thing about going into the proteins. And this is something I only discovered last December. It's hard for me to believe it's only been that long.

Really a beautiful story. Anthony Samsel and I have been working together almost from the beginning. I heard from Don Huber about glyphosate. And shortly after that, I actually did visit Dr. Mercola's office, and I did an interview with him.

Dr. Mercola said to me—I shared with him, I said, "Jesus, glyphosate. I just heard about it. What do you think?" And he said, "You need to talk to Anthony Samsel." So I did!

I talked to Anthony Samsel, and then we just started going on a roll. We've just been collaborating ever since. We've published a series of five papers for glyphosate. We call them 1 through 5, in the title, with a different topic in each one, but all connected to glyphosate.

So last December, Anthony called me up and he says, "Stephanie, I think glyphosate is getting into the proteins by mistake in place of glycine."

I said, "What are you talking about?"

"No, I really think it's happening."

He's a really brilliant chemist. He worked at Arthur D. Little for many years. He has all kinds of

patents to his name. He has a real intuitive understanding of chemistry. I really respect his knowledge. He has a vast, vast knowledge.

He said, "I think this is happening because that's how you can explain all these things we're seeing in all these diseases that are correlated. Every one of them you can figure out how it would happen because of glyphosate substituting for glycine."

And so he was excited enough and convincing enough that I decided to take a look. So I just basically started reading one paper after another about the role of glycine in various proteins. And so you can find a whole bunch of literature out there about a specific protein.

It's really neat how they figure out proteins because they'll look at all the different species that make this protein. They have all these different variants of the proteins with different sequences. But every one of them has glycine at that one spot.

For example, myosin. Myacine is a muscle protein, really important for muscle movement. It's a motor. And myosin contains a glycine [position] 699 in that sequence. At the 699th position, it contains glycine, all the myosins of all the different species.

And if you change that glycine into alanine, in other words, you take out the glycine and put alanine instead, alanine just has one extra methyl group, which is a very small change in the molecule. But it ruins it. The molecule has only 1% capacity with alanine instead of glycine.

So glyphosate, instead of glycine, would be much worse than alanine because it's a much bulkier molecule, even more trouble to put glyphosate instead of glycine. That would totally ruin it.

And so we have chronic fatigue syndrome. I think it's because glyphosate is getting into the muscles, getting into the myosin, and causing the muscles to basically be immobilized. They are just so sluggish because they've got some proportion of those myosin molecules have glyphosate instead of glycine.

So it's really, really fascinating. And even the very molecule that the proteins that glyphosate disrupts in the plants that Monsanto says is it does a key toxic action, is this protein that it's in the shikimate pathway, it's called EPSPS, the protein, UPSP.

And that protein actually has an essential glycine at the active side. And so if that glycine is replaced even by alanine, it reduces the activity level by quite a bit. If you replace it with glyphosate, you would be expected to kill it completely.

And in fact, they've shown that glyphosate shows up in the active side. It gets in the way in that active side and prevents the substrate from getting in. That's how it disrupts the enzymes.

So they know all of that but they don't go so far as to say that it replaces the glycine. But that is obviously how it could get in to the active side is by replacing the glycine.

And they've shown, in fact, that e. coli developed a resistance. They naturally developed a resistance to glyphosate by replacing that glycine with alanine. And alanine, again, has that extra methyl. So they replaced it with alanine, so their enzymes are limping along.

It's like 60 folds less active than it was before, but it's completely resistant to glyphosate.

The e. coli can actually get along with that enzyme, what that defective form of the enzyme. They do better in glyphosate exposure than the guys who don't have that defective form. And that's because they don't have glycine at that position, so they're not susceptible to the glyphosate poisoning anymore.

So it's very clear that that's what's going on. The glyphosate is substituting for glycine in the protein.

And that's how you can explain all these neurological diseases, including autism. Each one of them, ALS, autism, Alzheimer's, even the Prion disease, it's the mad cow in the cows, every one of them.

You can find literature that talks about specific glycine that seems to be the source of trouble, highly conserved glycine. It's truly, truly amazing how easy it is to figure this out. It's incredible.

33:15 GLYPHOSATE AND DISEASES

Wendy Myers: You've recently developed a new insight about an insidious way in which glyphosate can

slowly erode our health, causing a lot of debilitating diseases, can you explain this?

Dr. Seneff: So that's totally because of this, getting into the proteins by mistake. It's a very slow, insidious process. So you're getting a little bit of glyphosate every time you drink a glass of water, every time you eat some soy, a little bit of glyphosate. And most of it probably goes out eventually.

You get out through your urine or through your feces.

But there is some small percentage that is taken up by your cells, and then incorporated into God knows which protein. Some protein gets stuck in there. And then depending upon which protein, depending upon where, it could totally ruin that protein's ability to do its job.

And worse than that, it can make that protein unable to be broken down. That's the really key problem because you look at Alzheimer's disease, and you have all that amyloid beta plaque, that stuff is a consequence of glyphosate getting into the protein and preventing the cell from being able to break the protein down.

So you have this broken protein you can't get rid of, and eventually, you pile up so much garbage that the cell basically can't function anymore.

So a lot of these diseases have to do with the accumulation of mis-folded proteins that they can't clear.

Worse than that, glyphosate disrupts the mechanism by which the proteins are cleared. And so this gets into sulfate, which is my big topic. I've worked on sulfate nearly since the beginning. Ever since I started looking in autism, I was interested in the idea that sulfate deficiency was causing autism.

And sulfate is essential in that outside of the cell, there are these complex sugar [changes] that the cell surrounds itself with, and there's sulfate in those. And those are taken in by the cell, into the liposomes to help the cell break down the proteins.

So if there is sulfate deficiency, it's hard to break down broken proteins. And so on top of that, you have these proteins with this glyphosate in them that makes them very difficult to break down as well. So it's a double hit, and your cell just gets completely overwhelmed

with this garbage that it can't clear.

So one way to fix that—sometimes the cell basically shuts down and dies, spills some contents out into the environment, and that's how you can end up with fungus infection problems because the yeast can actually come in and clear the garbage. And I think that's one of the things they're doing for us.

We have a lot of problems with yeast infection these days—people having various issues with fungus and yeast. I think they're performing a useful role in clearing some of this debris that are own cells can't clear because they're too sick.

Wendy Myers: So, so interesting. I have a lot of clients coming to me who have fungal infections they just can't shake no matter what they do.

Dr. Seneff: Organic diet I think would be really, really great for helping to fix that.

36:06 OXALATES

Wendy Myers: Let's talk about oxalates. Oxalates are a big problem. Almost every single person I test, doing organic tests on, they've got high oxalates. So what are oxalates, and how does glyphosate contribute to them?

Dr. Seneff: That's a very interesting topic. And it's also, by the way, connected to autism. Many autistic kids have high levels of oxalates in their urine.

I think there's a whole shift in the way metabolism is working. I suspect there may even be this concept of replacing sulfate with oxalate because of the sulfate deficiency because they have some similar properties. They have some similar biophysical properties.

But what's happening is that there are several things that are going wrong. The microbes in the gut that metabolize the oxalates, the enzymes they use to do that depend on glycine and also depend on manganese, and both of those things are disrupted by glyphosate.

So you're not getting the oxalates properly broken down, if they're coming in, in the diet

to begin with.

But also glyphosate itself can be converted to oxalate. It can break down and become oxalate. So it can be a source of oxalate itself.

I think there are complex changes in the way the liver is managing because the liver has all these different possible pathways that it can use to bring things to different places. And there's a blockage in the pathway that causes them to go this other way and end up producing all these extra oxalates.

So it's basically just messing up your metabolic pathways in such a way to encourage this overproduction of oxalates, which of course, they can crystalize. The big problem with oxalates is that they can crystalize with the calcium. Calcium oxalate crystals can even get into your brain.

They can get into your kidneys and cause all kinds of issues with kidney stones and things like that. So they're nasty.

Wendy Myers: Let's talk a little bit about how oxalates gum up your systems, and interfere with your sulfation pathways.

Dr. Seneff: I'm not sure I can answer that. Let's see. You have something in mind?

Wendy Myers: [What's the difference between] sulfation and what not?

38:30 DETOXING GLYPHOSATES

Wendy Myers: Let's go back to glyphosate. What can people do protect themselves from glyphosate exposure, and even detox glyphosate?

Dr. Seneff: Detoxing is a really good point because I've had read a couple of papers now where they're working with the cows.

So there's a nice paper where they had cows that were sick, and they showed they had high levels of glyphosate in their urine. And they put them on an organic diet, and then they fed them bentonite clay, sauerkraut juice, fulvic acid and humic acid, which are

organic acids from the soil.

So it's a very interesting set of things to detox. And they found that their health improved and their glyphosate levels in the urine went down following those treatments.

And those are all things that people can take. They're pretty harmless, I think, as far as side effects and things like that.

Sauerkraut juice, of course, is going to have a lot of probiotics. So if you think in terms of eating probiotic foods, foods that naturally contain live culture, that's really good to do.

I love cheese, and I think cheese is a good thing to eat for that reason. There are kinds of exotic cheese are wonderful, organic of course. It has to be organic.

And then also, the other interesting thing is that there are some really [wheat], some plants, that have very interesting properties to help you with the sulfate problem. Dandelions, in particular, and also barberries.

So there are some products you can get that are derived from dandelions and barberries, and these things have also been shown to help to fix the illnesses that glyphosate causes. I suspect they are doing it by supporting sulfate transport.

I've done a lot of research on sulfate and it is quite interesting that the aromatic amino acids, which glyphosate disrupts, are sulfate transporters because they're carried in the blood with the sulfate attached to them. And then when they arrive at their destination, the sulfate comes off.

And whatever this is, this neurotransmitter or something, is doing whatever it does with its signaling, but it's also saying, "Hey, here's your sulfate."

So it's handing the sulfate over to the cell that receives it.

And that's true for vitamin D too. Vitamin D comes in a sulfated form. Cholesterol sulfate is a really important molecule.

So all the sterols, all the hormones, the testosterone, the progesterone, estrogen, all those sex hormones, the cortisol, and also this thing called DHEA, all of these are sulfated in

transit. And these are all derived from cholesterol.

Cholesterol is a really important molecule, and I would encourage people to eat a high cholesterol diet, which is surprising because a lot of people are on a low cholesterol diet because they're worried about heart disease.

I will tell you that I think if you eat cholesterol, you'll actually lower your serum cholesterol levels because you will protect your liver from having to make cholesterol if you supply it in your food. It's really a better thing to do.

So I believe in a high cholesterol diet.

Eggs are great, organic eggs, because they have all kinds of nutrients. They have a lot of different minerals. Mineral deficiencies are at issue, so you want to do bone broth, organic again. Get the bones from grass-fed cows, cook them for a long time, slow cook in water, and make a terrific broth. Put some veggies in there.

Green veggies are awesome, especially cruciferous vegetables. They contain a lot of sulfur. Garlic and onions are also really good source of sulfur.

And of course, seafood. Seafood is an outstanding source of all kinds of nutrients, especially the mussels, the clams, the oysters. These are really, really healthy foods.

So you want to eat a nutrient-rich diet, micronutrient-rich diet, high in probiotics and high in, what they call polyphenols, which is the colorful fruits and vegetables. They have a lot of polyphenols. Those can also transport sulfate.

So a lot of it has to do with making sure you can move the sulfate around in your body. You also need to synthesize the sulfate, and for that you need sunlight. Sunlight exposure to the skin, sunlight exposure to the eyes, is really good for helping you to synthesize the sulfate. And then you've got all these sulfate transporters available, the aromatics, the polyphenols, and the sterols coming from cholesterol and all of its derivatives.

So those things are all really, really important for your health.

Wendy Myers: I ate fish eggs quite often to get the high cholesterol—it's really insane.

Dr. Seneff: That's great. Especially if too expensive for a lot of people.

Wendy Myers: I'm crazy because I eat them specifically to get more cholesterol in my diet.

Dr. Seneff: They're great. It's not just the cholesterol too. They have all kinds of good nutrients, just like eggs. In general, anything that's in the reproductive system of some organism is going to be very, very rich, anything that's supplying nutrients for the next generation.

An egg has got all the nutrients you need to make a chicken in there. And it's the same thing with the fish eggs. They can make a fish, so you can think there's a tremendous amount of nutritional value in those eggs of any form.

Wendy Myers: And they're so good and crunchy. Not everyone would agree with me on that statement, but I just crave them. I don't know why.

43:42 GLYPHOSATE AND HORMONES

Wendy Myers: So let's talk about how glyphosate interrupts our hormones, and cholesterol, like you said, because so many people are having issues with hormones, reproductive issues, and horrible periods, menopause. How is glyphosate contributing to that?

Dr. Seneff: Glyphosate is an estrogenic agent. It actually is an endocrine disruptor, which is a really, really serious accusation for any kind of a chemical. Endocrine disruptors are terrible because they can have a damage and the affect it at extremely minute levels.

And in fact, in vitro study on cancer cells, breast cancer cells, they grew these cancer cells in culture, and they found that if they expose them to levels of glyphosate measured in parts per trillion, which is really, really, tiny, tiny levels of glyphosate, cause those breast cancer cells to proliferate. So it made the tumor grow.

Really amazing.

Glyphosate has been shown to have a major problem with the testes. There are these cells in the testes, nurse cells, they help out the sperm. And those guys get clobbered by glyphosate. They can't function according to their normal way of functioning.

That's going to mess up the sperm because it causes the sperm to not develop correctly as a consequence of these helper cells being messed up.

In the adrenals, there's a study on RoundUp. In fact, there's more than one study on RoundUp that showed RoundUp suppresses the ability of the adrenal glands to produce the adrenal hormones. And that's going to be all these crucial hormones for controlling.

Lots of people have hormone imbalance problems, and that includes DHEA, adrenaline, obviously from the adrenals. And also sex hormones. The adrenal glands also make sex hormones.

So glyphosate messes up the ability to—there's this protein called StAR. I forgot what it stands for, but StAR, S-T-A-R, a nice name, because it is a start. It's a superstar. And that protein is essential for getting the cholesterol into the mitochondria.

The cholesterol needs to get into the mitochondria in order to be able to turn it into these steroid hormones. If that gets blocked by RoundUp, and therefore, the adrenals can't make the hormones.

46:05 VITAMIN C DEFICIENCY

And I think there's another whole issue with vitamin C that I've been investigating lately. I don't have the complete story yet, but I see tremendous examples of people who are suffering from something that looks an awful lot like severe vitamin C deficiency.

I think glyphosate disrupts the red blood cell's ability to maintain vitamin C in the reduced form. And actually, vitamin C can become oxalate too, so if you're taking high doses of vitamin C, and then your body isn't able to use it correctly, it could be that's just being driven to straight into oxalate and causing the oxalate issues.

But the vitamin C is absolutely essential for the adrenal glands. They really need the vitamin C to be able to produce their hormones. And so if the vitamin C is not maintained in the reduced state, they can't use it. And the red blood cells, there's an enzyme called G6PD, glucose 6 phosphate dehydrogenase, really fascinating protein that has a huge number of mutations these days.

I think it's one of the most highly mutated proteins in humans, so there are many, many different variants of this protein. I think G6PD is under attack by glyphosate, and so the body is trying to come up with, the evolution is trying to come up with some solution that can get around the glyphosate problem, and so far, not really succeeding.

So we have a lot of issues with G6PD deficiency in the red blood cells, which is crucial for maintaining vitamin C in the reduced state.

So that it doesn't happen, you get oxidation damage in the blood vessels, and that of course, leads to things like heart disease because you get this atherosclerosis, all this inflammation, all that stuff. It comes from an inability to maintain these powerful antioxidant agents like vitamin C in the reduced state.

So that's a huge issue also.

47:56 GLYPHOSATE AND MTHFR

Wendy Myers: You touched earlier on folic acid and how glyphosate can interfere in the many things related to folic acid. Can you relate that back to MTHFR and how that can be problematic?

Dr. Seneff: That's a very complicated story. You've probably seen that big, fancy picture of how you get the sulfur, you have the methionine, and you can get the methyl off of methionine. And the methylation pathway gets blocked if MTHFR is busted.

A lot of people have MTHFR issues and that's going to lead to impaired methylation capacity, and methylation is really important for lots of different things, including the DNA, DNA expression as well, the different protein expression of different proteins in the body.

So methylation is a very important control mechanism that becomes defective if you can't get those methyl groups off of the methionine. And that's what happens with this MTHFR problem.

Folate is very interesting. And I did a whole, one-hour presentation on folate and folic acid at Autism One last year, maybe a year ago, or maybe at [Weston Price], I'm not sure

where, at Weston Price, I think, last November, on folic acid.

U.S. requires folic acid now as a nutritional fortification in wheat-based products because they got so concerned about this whole issue of neural tube defects related to folate deficiency.

People knock around the terms folate, folic acid, as if they're the same thing. And that is not true at all. And in fact, folic acid, which is what's in the wheat, is an unmethylated, oxidized form of the thing you want, which is the methylfolate.

So when you eat a lot of folic acid, your liver is compelled to both reduce it and methylate it before it can actually be useful to you. And in doing so, the liver is depleting itself of both methyl groups and of the reduction capacity.

So glutathione is so important for reducing things, but if you're busy reducing folic acid to folate, you don't have any more glutathione left. You're going to use up your glutathione.

People thing folic acid is the same thing as folate, and it's just not true. And so what you're getting in your bread can actually work against you. It can actually cause folate deficiency in the brain. And it's really wild because what happens is that the liver is so exhausted from having converted all this past folic acid to folate that it's just, "Okay, I'm not going to do this anymore. I'm just going to let the folic acid go into the blood."

You don't want to have folic acid in your blood because what happens is that it binds to the folate receptors in the brain irreversibly, and blocks them. So then you can't get the folate into the brain because the folic acid is in the way.

And the folic acid is useless to the brain.

So it's really truly amazing that you think by taking folic acid, you're actually solving the problem. It's actually making the problem worse.

Wendy Myers: It's amazing. Even folate—

Dr. Seneff: Methylfolate is what you could take, and I think that would be good if you have a folate deficiency problem, and since you're providing both the methyl and the reduced capacity, so you're providing those two important things.

The folic acid is a carrier, but it doesn't have any of the good stuff on it. So that's the problem with it.

Wendy Myers: Do you think there's any issue with taking methylated folate and perhaps that being blocked is people have too much folic acid in their blood from eating breads and grains?

Dr. Seneff: I know. Maybe you need to take methionine or something that could give you methionine like n-acetyl cysteine, something that is a—and you need antioxidant. So for example, vitamin C. You need to take things that are going to be antioxidants, and takes things that are going to provide methyl groups.

Glycine actually provides methyl. And I didn't mention this, but this is pretty amazing because glycine is normally metabolized in the gut by the microbes. And that metabolism actually produces a methyl group that then can be added to folate to make methylfolate.

And it turns out, folic acid can't do that.

So if you take folic acid, the gut bacteria have no chance of methylating because it's not reduced. It's oxidized. So that's why the folic acid just goes straight to the liver. But folate, glycine can add methyl to folate to make methylfolate out of it, but it needs to get that out of the glycine.

And the pathway that does that has an essential glycine in the enzyme that can wreck it with glyphosate.

So glyphosate can both compete as a substrate because it is a glycine molecule. It's a glycine on steroids. It's got extra stuff stuck onto its nitrogen.

So it can both compete with the glycine to mess up the input, and it can get into the protein that takes the methyl off the glycine and mess that protein up. So basically, the glycine doesn't become a source of methyl.

Wendy Myers: So many reasons to not eat bread, so many reasons.

Dr. Seneff: I know. It's a shame too because actually, I think wheat is not a bad food, if it's heirloom wheat, organic. If I eat bread, it's always heirloom, organic wheat with sourdough.

Wendy Myers: I don't have an issue with sourdough. If I go to a really nice restaurant and I know they're using really good flour, it's not enriched, it's not this garbage that's enriched with iron and folic acid, it doesn't bother me.

The breads in Europe, they don't bother me. But here, forget it.

Dr. Seneff: It's interesting, isn't it? It's so interesting with this country. We're so ridiculous because we have a problem with iron. We have a major problem with anemia, but we also have a problem with iron toxicity.

The kind of iron that they put in is a bad form of iron. The kind of folate they put in is a bad form of folate. They're using cheap products to produce this inedible stuff. And they're not solving any problems. They're just making it worse.

And so it's stupid. You just wish that they could come to their senses and just stop doing these crazy things that are making your food inedible.

54:27 GLYPHOSATE AND THE LIVER

Wendy Myers: Let's talk about how glyphosate interferes in the liver's ability to detox. We touched on that before. I've begun detox. I have a detox program. There are so many things working against us for our bodies' ability to detox 700 chemicals on average we have in our body, and the toxic metals we have.

So how does glyphosate contribute to our liver's inability to detox?

Dr. Seneff: That's a great question. I talked about the cytochrome p450 enzymes before, and that's a serious piece of the puzzle, is that it distrusts the cytochrome p450 enzymes, which are really crucial for a lot of toxic chemicals are metabolized through them.

There are also other things going on. It messes up the sulfate because I mentioned the sulfate, it's a train wreck for sulfate in every which way. It disrupts the sulfate transporters, it disrupts the sulfate synthesis, the [inose] molecule that synthesizes sulfate in the skin, and there's also in the liver. It depends on sunlight.

And that also has crucial glycine that if you change them to glyphosate, the enzyme will be broken.

There are several different sulfur enzymes involved in sulfate transport. Even, for example, the enzyme that produces methionine from sulfate, all these different things are disrupted.

E. coli. There's a wonderful study that showed all these enzymes that are suppressed by glyphosate, and there were four or five different enzymes related to sulfur, relating to sulfur metabolism that were suppressed.

An so sulfation is one way that you detox as well. If that's broken, you can't detox.

Metyhlation is screwed up. Sulfation is screwed up. Glutathione, what happens, I think, is that the liver favors glutathione [inhalation] as a way to detox. You need to add stuff to the molecule in order to make it more water-soluble, so you can flush it out.

So what happens is that it goes to the liver, the liver puts something on there, like a methyl or sulfate or glutathione. And then it ships it back to the gut. And then it hopefully goes out through the feces in that second round, after it's been modified by the liver.

That's a way to get rid of a lot of these toxic chemicals that are coming in through the food.

But basically, you're stuck with glutathione inhalation. I think that's the one that becomes much more prevalent in the presence of glyphosate because the other guys aren't working. So you end up throwing away glutathione.

Every time you detox with glutathione, you're losing it. And glutathione is a super, super important antioxidant in the liver. The liver loses this ability to protect itself from oxidation damage, and then you get into liver cirrhosis, and then you get into fatty liver disease.

Glyphosate causes fatty liver disease because it messes up fructose metabolism, and that's a whole other story. But the poor liver, it's piling itself up with fat. It doesn't have enough cytochrome p450 enzymes. It's got trouble with the sulfur pathways. Often, it doesn't have enough cholesterol because cholesterol synthesis is, you're eating a low fat diet, so that's also hurting it.

And so the poor liver is just on its last leg. And the liver is essential for getting rid of those toxic chemicals.

Wendy Myers: That's why I encourage everyone to take glutathione, to help it out. The glutathione precursors like NEC. It's so important.

Dr. Seneff: There are several different sulfur-containing supplements that could be useful. There's l-lipolic acid, and there's MSN, methylsulfonylmethane, which some people have found to be very effective.

And of course, garlic. I love garlic. These are all good sources of sulfur.

But you have to be careful. A lot of people have sulfur sensitivity problems, especially sulfides in wines and things like that. And that is also, I think, due to glyphosate because glyphosate is messing up the enzyme that oxides sulfide to sulfate. It depends on molybdenum.

And so that's one of those minerals that glyphosate could disrupt and prevent sulfide oxidase from being able to do its job. Sulfide is really, really toxic if you can't oxidize it to sulfate. And at the same time, you have a sulfate deficiency, so you get stuck with this sulfide that you can't rid of. And that can cause a lot of damage because it's very reactive.

Wendy Myers: Yes, that was my next question. When the glyphosate interferes in sulfation, people that have garlic or sulfur food sensitivity, is the glyphosate is contributing to that? When I go eat Korean food, I will actually vomit. This has happened a number of times.

And I finally learned on the third time not to eat Korean food because it's very heavy in garlic. Ethnic foods, I'll actually vomit, because your body just can't, or my body, just can't handle that amount of garlic.

Dr. Seneff: That's very interesting. I hear a lot of people tell me that because I keep saying you've got to get sulfur, you've got to get sulfur. And they say, "No, I can't eat sulfur-containing foods. They make me sick."

And I've had enough people tell me that. And that's been puzzling me. That's been on my

to-do list. I got to figure this out. And I do think that's part of what's going on is that sulfide oxidase gets blocked by glyphosate. And then that makes the sulfides really toxic. And then that will also encourage the growth of sulfur-reducing bacteria in the gut.

So you get an excess of desulfovibrio, which will reduce the sulfide to hydrogen sulfide gas. But if you have too much hydrogen sulfide gas at one time, hydrogen sulfide gas is a very interesting molecule which has benefits, just like oxygen. It has beneficial effects, but too much of it can kill you.

So you can get a real problem in your gut if all of a sudden, you're producing lots of hydrogen sulfide gas because you've got this block that can't get you to sulfate. They can't get rid of sulfate. And of course, at the same time, you've got this major sulfate deficiency problem, which is what's going to drive you towards oxalates. That's how you're going to get more oxalates because that's the balance of the—what can I use instead of sulfate to help with the [bud] because you've got to have the right buffering in there.

So you get into a nasty situation, you really need the sulfate in your body to be healthy. But the question is how to get it there, past all those problems.

And so one thing I recommend for people, I would be curious to know if people who have sensitivities to sulfur in their diet, if they soak in Epsom salt baths. Do they also have some kind of a bad reaction, or does that work? Because that's the way to get the sulfate through the skin, bypassing the gut, and so that might be a safer method to get sulfate supplies to your body without having to actually eat sulfur. So I would recommend that.

I would be curious to know actually, for people who are sensitive to sulfur, whether they're also sensitive to Epsom salts. I don't know that answer yet.

Wendy Myers: That's so interesting because Epsom salts are magnesium sulfate. Transdermally is a great way to get nutrients into your body, and toxins, but a great way to get nutrients too.

61:14 DETOXING GLYPHOSATES WITH NEAR INFRARED SAUNA

Wendy Myers: Can you talk a little bit, if you're able to, about if you can detox glyphosate with an infrared sauna? Can you sweat glyphosate out through your skin?

Dr. Seneff: I think infrared sauna is an awesome thing to do. I really recommend it. Infrared light, in fact, is very interesting. There are studies that have been done by people like Gerry Pollack. Gerry Pollack is an expert on water in Seattle, Washington. He's a professor at the university there, Washington University.

He has shown in his papers that infrared light can cause these, what they call the exclusion zones, to grow forth fourfold, to get four times as big. And the exclusion zone is this area, like in the blood vessel, there's an area around the wall, inside the wall of the blood vessel of structured water.

That's basically what I call liquid ice. It's like jello. It's a form of water that's crystalline and pure. And so the body forms this pure crystalline water around the blood vessel, all over, all of the blood vessels, a thin layer of this crystalline water.

And infrared light makes that thing grow four times as big. And in growing four times as big, it gets four times as much energy out of it because what it does is it's like a battery. It creates a separation of charge. It's a really fascinating space that I've been struggling to learn about because it's a difficult topic.

But water is essential for life, and water is an extremely unusual molecule. It has this fourth phase. It has the three phases, liquid, gas and solid. But it also has a fourth phase. And that's this gel. It's like jello.

And that fourth phase is essential for the blood vessels to be healthy.

You need to sulfate to make that form, which is why you have to make sure to get plenty of sulfate to be able to create that proper structured water all around your blood vessels, which keeps the things that are in the blood inside the pipe, instead of having to just leak out nearly to various places where they're not supposed to go.

So it gives you tight control over where those nutrients, and also any toxins that might be in the blood, to keep them out, and not getting them into the tissues.

63:43 FINAL TIPS: AVOIDING EXPOSURE AND DETOXING GLYPHOSATE

Wendy Myers: So it seems hopeless. We're talking about glyphosate that it's in the air, it's in the food, it's in the water, it's in everything. Can you just give the listeners some words of advice? Step 1, 2, 3, to avoid glyphosate as much as you can and detox it.

Dr. Seneff: I mentioned before those various nutrients that you can take. I guess I should also say herbs and spices. Those are also good sulfate transporters. Things like parsley.

Wendy Myers: Cilantro maybe?

Dr. Seneff: You can take cilantro and—

Wendy Myers: Dandelion? Dandelion greens?

Dr. Seneff: Yes, dandelion greens. All these things that have exotic taste, very tasty foods. They feel like they're loaded with nutrients, the herbs, thyme and basil. Basil was one that I was thinking of, which is so great.

Just take the basil and grind it up, and make a spaghetti with just the basil sauce. Really, very, very nutritious.

And those things contain these special molecules, these polyphenols that will help with the sulfate transport.

So you want to eat a lot of herbs. You want to put a lot of herbs into your foods. And that includes, of course, garlic and onions as well, which we're very fond of garlic and onions because they're so easy to get, and they're so delicious. We can get them organic too, fortunately.

One thing great is that there's more and more opportunity to buy organic. It's growing exponentially actually, which is fantastic, in step with the exponential growth in glyphosate.

I was surprised there. And so more and more people are waking up, and I think that not

only are you keeping your family healthy when you buy organic, you're also promoting your organic industry.

The farmers will eventually say, "Hey, why am I poisoning myself growing this stupid crop that nobody wants? If I can convert my crop to be organic, I can make more money. I can be safe from toxic exposure myself. Why wouldn't I do that?"

So I'm hoping for a revolution among the farmers that they will start to wake up and realize.

And also, of course, the glyphosate is failing. The weeds are becoming resistant. This is part of why it's growing exponentially because they have to keep on adding more and more glyphosate to kill the weeds. They have stronger doses.

And this is also why they're now introducing these complex chemicals.

Dr. Seneff: They have this new herbicide combination, Enlist Duo, which is both glyophosate and 2,4-D. 2,4-D is a component of Agent Orange.

And so the government is like, "Yes, no problem. Go ahead."

The government is just completely [inaudible 01:06:28] days ago about this concept of poisoning ourselves with our food. They just don't seem to get it, that this is a huge crisis. It's going to take the country down if we don't do something different.

So consumers have power with their pocketbook. So you buy that organic, and you say, "Okay, I'm spending more money. It looks hard. Here's this organic one. It looks the same. Why am I spending 30% more?"

But remember, you're not getting that glyphosate when you do that. You're keeping your family healthy, and you're supporting organic agriculture, which is also sustainable agriculture that will help with global warming as well because chemical-based agriculture is a major component of the global warming problem.

And so it'll help with that as well.

So you can feel like you are spending your money very wise when you buy organic, and

you're spending your money very stupidly when you don't. Encourage people to switch to organic.

I think that's going to be the way we solve this problem. We're going to have more and more people that realize when they switch to organic, they feel better, and then they tell their friends, and through word of mouth, we'll eventually get a revolution where our food will be fixed.

But it's not going to happen from the government because the government has been so thoroughly subsidized by this industry that they're just unable to think any differently than to say, "This is fine. It doesn't matter. We can poison people. It's not a problem."

They just can't get past that, which is really frustrating for me.

Wendy Myers: It's really unfortunate. It just breaks my heart to know all the people, they're going to be getting cancer and autoimmune disease. Dementia is on the rise because people are not being protected by their government like they are in Europe and Russia, and even China, are being more protected.

Dr. Seneff: It's very embarrassing that Putin is coming on strong about, "We're going to be the major supplier of organic to the world."

That's not in the news here. It's only in the alternative will you learn that. They're not saying, "Putin is going organic." They don't want to even know that. He's just a big bad guy. How could he be doing something good?

But he is. He's really pushing organic in Russia, and I think it's a very smart move. And we should be doing the same.

Government could be very powerful if they would just wake up and change. And it just seems like they're unreachable.

Wendy Myers: It's not surprising when Monsanto has been lying in the government's pockets since the 80's. It's a very systematic thing that they've been doing to get control of our food supply. It's sickening, but that's our reality, and we can make choices. We do have control.

Dr. Seneff: We just have to not get so angry about it, but just say, "I can do this on my own."

The really good news about this country is that the organic is more and more available. So if you do decide to switch to organic, it's not so painful anymore. It used to be hard to get organic. And now, you can also order it online, like Thrive Market.

So if you can't find it locally, you live in some small town and some obscure place, you can order it online.

So there are ways you can get organic. Again, it's more money, but you think about the money you're not spending on some horrible disease.

If you have a kid with autism, and that is just not only the expense, but also it's just a tragedy involved with all of that. To avoid something like that, why wouldn't you spend 30% more on your food for that opportunity? I think it just totally makes sense.

Wendy Myers: Are you going to spend it on food now, or medications, doctors or nursing homes later? That's going to be more way expensive when you don't have the money, and you're not able to work.

Dr. Seneff: That's true. Once you can't work, that's a huge amount of money spent because it's money not earned.

70:10 MOST PRESSING HEALTH ISSUE IN THE WORLD TODAY

Wendy Myers: And so, I have a question that I ask everyone that comes on the podcast. What do you think is the most pressing health issue in the world today?

Dr. Seneff: I think I would have to say autism, if I have to pick one disease. Certainly, glyphosate is the chemical that's the most pressing chemical.

If we were just to ban glyphosate, we could make a huge amount of progress on world health. And I think among all of the diseases that glyphosate causes, the biggest tragedy to me is autism because that is taking away the life of a young child.

It's just so costly to society. It's going to disrupt the school system. My projection [inaudible

01:10:47] 50% of the kids with autism by 2032. That is a very scary number. And that's just based on extending the exponential curve that CDC has shown for the past three decades.

Once we have half the children with autism, we're going to be in quite a mess. And I just think we have to avoid that. We have to do everything we can to stop that. So I would say autism.

And of course, autism is part of a much larger problem with the children. They have so many other issues, many, many autoimmune diseases. ADHD is something like 12% of the kids. That's attention deficit disorder. And all these allergies, these food allergies, asthma, eczema, celiac disease, inflammatory bowel disease, there are so many problems.

And even children are getting rheumatoid arthritis now. It's just crazy.

The children are so important because that's our future. I feel really bad for all the old people who are getting Alzheimer's as well, of course. But their life is mostly over, so it's sad, but it's not as tragic to me as a young child getting autism. It's just horrible.

Wendy Myers: It's devastating. I was there myself when my daughter was diagnosed. Luckily, I knew exactly what to do. All guns a-blazing. And I detoxed her for aluminum. She was already on organic diet. School, occupational therapy, speech therapy.

But that was really expensive.

She's better now. Luckily, I had the resources to be able to do that. But a lot of families, they don't know what to do, and too little too late. It's heartbreaking.

Dr. Seneff: I really do hope that people can get a better sense of what's going on with the vaccines because I think it's really a shame how the message has been—it's like a meme. The vaccines are safe. Vaccines are wonderful. The anti-vaxxers are such evil people that they threaten our children with the exposure because they're not protected, and all this stuff.

And when you really study the vaccines the way I have, you see the story is wrong. It's just wrong. And the vaccines are only immunizing you against every single strain, and that vaccine is going to immunize you, at best, if it succeeds, against that one bug.

And there are many, many, many viruses out there that we don't even have a vaccine for, nor would it make sense to give yourself a thousand vaccines.

There's no way you can individually immunize yourself one by one against all the viruses.

So if we just get rid of certain ones, there are always other ones that can come in and make you sicker.

So you haven't really solved anything. And every time you get a vaccine, you're setting back your general immunity by a notch. So when you get more and more vaccines, you get a weaker and weaker general immune system. So all those other viruses are now a bigger threat to you than they were before.

So you haven't fixed anything. You've just made things worse. And we end up with a lot of people who are very susceptible to any virus that comes along.

And so you become almost terrified to step outside.

You need to have a strong innate immunity. You don't really want to be producing these antibodies that are specific to specific germs. You don't want to do that. Every time you do that you have a chance to produce an autoimmune disease that could be devastating.

And so it's just the vaccine concept is broken in my opinion.

Wendy Myers: Yes, there is no such thing as [herd] immunity. It will never happen. It does not exist.

Dr. Seneff: It is funny how they say that the anti-vaxxers ,they have these wonderful kids who are so healthy. They never get sick. And then they accuse them of being the ones that have caused a breakout. And yet, they're not getting sick. So it doesn't make sense.

The other kids are so sick, are so vulnerable, that they easily get sick because they've been pumped up with all these vaccines, and they've got all these issues with their immune system. It's just a train wreck.

You're forcing the immune system down a path that is not natural with the vaccine. It's not a natural process.

And of course, you totally mess up that child, the baby, because the mother doesn't have natural immunity, and she's supposed be able to supply it in her breast milk, but she can't because she got those vaccines, and they wore off.

So then the infant becomes vulnerable. And that's when you can really get a serious problem, something like measles if you're too young.

But you should have natural antibodies from your mom, but you don't because she's got the vaccine and it wore off. So you end up with a failed system for the most vulnerable people. It's just crazy.

Wendy Myers: It's difficult to find good information about vaccine dangers. Just five years ago, I started researching—not five years. Maybe right before I was pregnant. And I started researching about vaccines. Everything is pro-vaccine on the internet, on the news, in the newspaper because they are all bought by big pharma.

Dr. Seneff: Exactly. They think if they just keep shouting it loud enough that you will not believe anything else. They just tell you vaccines don't cause autism. It's like a mantra.

And they don't even provide support for why they believe that. They just say it.

Wendy Myers: It gets into the collective conscious. And I fell victim to that and thought I had done my research, and gave my daughter about 10 vaccines, and I paid the price. I paid the price for that, and so many other people are as well. And it's not really getting into the media.

Dr. Seneff: It's frustrating. It's really frustrating that the mainstream just such a strangle hold. There's just such filtering of information, so that the truth can't get out. It's just really frustrating.

But we're building a larger and larger alternative community, and I think eventually they'll be so large that their voice will be heard.

76:38 WHERE TO FIND DR. STEPHANIE SENEFF

Wendy Myers: Stephanie, thank you so much for coming on the podcast. I so appreciate it. I know the

listeners are going to listen to this a few times, just trying to absorb all the information.

Why don't you tell the listeners where they can learn more about you, and about glyphosate, et cetera?

Dr. Seneff: My name is pretty unusual, S-E-N-E-F-F, so if you can remember my last name, you can do a Google search and you can find all kinds of stuff. YouTube has a lot of YouTube videos, and some various podcasts. And I have a bunch of papers.

My papers are posted on my website, and my website is at MIT.

Probably if you Google my name, you'll see my website near the top of the list, but I can tell you the website in case you want to write it down. It's not an easy one to remember. It's People dot CSAIL, that's my lab, Computer Science and Artificial Intelligence Laboratory, C-S-A-I-L dot mit.edu/my last name, Seneff, S-E-N-E-F-F.

So I've got a bunch of stuff there, my papers and various slideshows from various presentations that I've given, and some few other things.

So there's a lot of material on my webpage. Very plain-looking, but it's got a lot of material in it.

Wendy Myers: Thank you so much for coming on the show. I so appreciate it.

Dr. Seneff: Thank you. Thank you so much for having me. It was great.

Wendy Myers: And everyone, if you want to learn more about me, go to LiveTo110.com. Check out my detox program at MineralPower.com.

Thank you so much for listening to the Live to 110 Podcast.