Autism Episode #3: Layering in Autophagy and Detoxification Support Transcript

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Podcast Introduction and Autism Series Recap

Your genes hold the answers to your family's overall health. I'm Dr. Paula Kruppstadt, and on the Get to the Root with Hope for Healing podcast, I sit down with experts in genetics, functional medicine, and family care to explore what's really going on beneath the surface so you can stop guessing and start healing.

From personalized insights to practical tools, we bring you whole family wellness that starts at the root. Welcome to the Get to the Root podcast. My name is Paula Krebsdott.

I'm your host, and I'm joined today by Catherine Salah. Welcome, Catherine. Thank you. Thanks for having me. We've done two other podcasts on autism, and the first one was basically the shock the disbelief and the denial and the frustration that comes when your child receives the diagnosis of autism.

And in that episode, we basically talked about lifestyle modifications that parents have within their power to work on moving their child towards balance.

Then our last episode, we talked about inflammation and neural inflammation, and we took a deep dive into different systems in the body, and we discussed how stabilizing parts of the endocannabinoid system, the cannabidiol system, hole-like receptors, and then how vitamin D is not really a vitamin, it's called the secosteroid, and how important it is to help our cells have enough fat, healthy fat.

Yes. today because we love getting to the root of why certain things happen and genetics are where it's at. So here at Hope for Healing, we have a proprietary genetic panel called the Hope for Healing Wellness Blueprint.

And Fagran Genomics has allowed us to craft this, and it allows us to put together a system where we can partner with families, and that's what we want to do.

So, without much more talk, what we're going to talk about today is why is your child so hangry, and how can I help my child take out the trash? Can you take a little bit of time and talk about why a child or even an adult shows up to the table hangry?

When we eat our food, the glucose that the body creates should go into our cells to create cellular energy. And we have genes, autophagy genes, that are there to help deliver glucose into those cells assisted by a vitamin B8 that is in our body called Dichiroinositol.

Why Kids Get Hangry: Autophagy and DCI

But when we have these autophagy gene SNPs, polymorphisms, then the glucose has a really hard time getting into the cells. It hangs out in the serum. We present these hangry, we get really hungry, we get hangry, we need to eat right away every two to three hours because what the body's doing instead of relying on cellular energy, it's relying on insulin energy.

And we run out of that and the body's saying, give me more, give me more, give me more. And so we need to eat every two to three hours. We're usually craving carbs and sugar and we're starting on cellular energy because of the autophagy gene SNPs.

So autophagy means self-eating. And when we find those on the genetic panels, usually, you know, like we said, people are hangry. So kind of reflecting back what you said, here's a cell.

glucose has to get in from the bloodstream into the cells to give the cell fuel. So there's an insulin receptor, there's a glucose receptor. So insulin binds, glucose comes in.

Now let's say a person's not autistic. What will happen if they've got autophagy genes as far as like their sugar in their bloodstream and maybe labs that might be different or abnormal if they can't get the glucose into their cells.

And so you're looking at A1C. Your A1C levels are abnormal. Your glucose levels are abnormal. You could have pre-diabetes, diabetes 1 and 2. A lot of times also we see brain fog.

joint pain. It can lead to autoimmunity and cancers because you think about a cell that is never energized, never self-cleaning, which is what autophagy means.

And so we are like a hoarder's house. We get dirty cells and the immune system slows down. So it has a lot of whole body impact, not just our insulin-glucose interaction.

It affects hormones as well. You have to have that insulin receptor open for the glucose to come in to have a proper testosterone-estrogen balance. And so it can also cause hormone dysregulation.

Okay. So you mentioned hemoglobin A1C. So that's the amount of sugar that's attached to a red blood cell over about three months. And I've seen pre-diabetic people go down to normal when they take D-chiroinositol, which is what you were saying.

It's like a mirror image. It's a certain type of inositol, not necessarily the combo. So when we do this genetic evaluation, that inositol helps the insulin bind.

So we've got the part, and you mentioned this, we've got the part where the glucose gets in and then it's there for fuel, but can you break it down a little bit more how the cells can clean themselves out with that extra Yes, and so the glucose fuels the autophagy, which is the self-cleaning action, but these autophagosomes are like Pac-Men.

They go around and pick up all of the dirty, used up components of the cells, takes it to the recycling center in our cell called the lysosome, cleans them up, puts them back to work, or degrades it in the membrane so the body can detoxify all of those extra components.

And so I think it's fabulous that we were created with our own little recycling center inside ourselves, but it can break down if you have these autophagy gene SNPs.

Yeah, and you were talking about these autophagosomes. They contain hydrogen peroxides and lipid peroxide. So they'll break down fats and then water soluble things.

And so when we think about taking the trash out of our body, that's a different step. But I want to back up a little bit. So let's say that we have a nonverbal child or a nonverbal adult with autism.

What kind of dosing are we looking at when we talk about DCI? Yes. Well, I think in our clinical experience that when we deliver that energy, that glucose to the cells, it increases their speech.

And so we found that giving 2,000 milligrams in divided doses of DCI will really drive in that glucose and our nonverbal patients are able to get their speech back.

It's a beautiful thing to witness. Yeah. And, you know, so much of the time, too, inattentiveness. Let's say that we don't necessarily have a child, even though Diagnosis codes are thrown around all the time, ADD, ADHD.

A lot of children and adults get labeled that are on the autism spectrum also with ADD or ADHD. So let's say we have a neurotypical child. What are some of the things that start to show up when they start using DCI?

See, they're not speech-delayed. So what tends to happen? I've seen that they begin eating vegetables. You know, they're now changing their, kind of like changing their palette, but they're not so picky.

They're not like craving all of the carbs and the chicken nuggets and this and that. So they're now open to eating

broccoli. And the things that mom and dad spend time cooking, a good quality nutrient dense meal, so their eating habits are better, they're able to go to bed without eating from dinner to bedtime.

They're not so hungry and needing that milk and cookies per se or any kind of snack before bed because now they can sleep soundly. And we need that time of fasting from dinner to breakfast because that is when we recycle and induce the autophagy.

And so it's really important. And that's what I've seen with our kids is that they are more attentive to the rate. I think it's an all around thing though.

You induce autophagy, but you also get rid of all the junk in the diet. and great reports from teachers. What have you been doing at home because now your child is able to sit and focus and concentrate and getting along with the friends and not having any behavioral issues?

Yes. I'm so glad you said that. And from a nutritionist standpoint, when you comment on that, and then from the pediatric side of the house, they're paying attention after lunch.

They don't crash and burn. They're not getting reprimanded as much because of that smooth delivery. And if you take DCI, you don't have these wild fluctuations.

Case in point, I have impaired autophagy, and I had not faithfully supported it, and my hemoglobin A1c was drifting upward. And I started using DCI very, very faithfully, and my hemoglobin A1c came right back down.

And we like it in a range, moms and dads and listeners, 4.8 to 5.2. That's nice, tight control. Catherine, you alluded to this earlier as far as long durations, but people are inducing autophagy by what we call intermittent fasting, where they go long periods of time.

Babies that are in a crib that sleep eight to 12 hours at night are already doing that. Which is awesome. But what you said when they're not, kiddos aren't like climbing through the cabinets at night trying to get another glucose hit before they go to bed and then they've got this going on and then they wake up in the middle of the night because they need to eat.

It's so nice to see that. Now I'd like you to explain to our listening audience and for those people who are watching us on Dr. Tox that can actually see us.

What the difference is between autophagy and detoxification? Okay. Well, autophagy is cellular. It's inside the cells.

Cellular Recycling vs. Detoxification

The patient is outside the cells, in the organs, in the liver, the kidneys, the brain, the nervous system. And so that's how I separate the two, but autophagy happens inside the cells.

So it's our own little cellular recycling. Yeah, so when I'm explaining this in an exam room, because it's so hard for people to remember all these things, is that the autophagy prepares the garbage that can't be recycled and used in the cell, and it kicks it out into the bloodstream.

Then it goes to the liver, the kidneys, the skin, and the lungs, and you sweat it out, pee it out, poop it out, or breathe it out. So you said it a different way, I said it a different way, but we're saying the same thing.

Now let's talk about what is on our wellness blueprint as far as some of the detoxification because you know what really intrigues me is we've got skin detox, we've got brain detox, we have various ways and routes, and then we've got things that help us detoxify pesticides and herbicides and lower inflammation in the body.

So, would you break down glutathione genes and explain what the heck is glutathione? Yeah. Well, glutathione is our master antioxidant. and detoxifier.

It's so important and it's not necessarily a nutrient in food, but it is created in our bodies by sulfur-rich vegetables like garlic and onion, broccoli, cauliflower, your your greens and all the foods that a lot of us don't want to eat, but it's so necessary for us to get those greens in, the mustard greens and swiss chard and brussels sprouts.

Very good. Yes. It is so important for decreasing inflammation and cleaning the house. And on the Wellness Blueprint panel, we have four glutathione genes.

One of them is in the chemistry, it is what promotes the production of glutathione. And then we have one that reduces that, so it's bioactive and bioavailable.

Then we have two genes, GSTM3, which provides the enzymes to utilize glutathione to detoxify the brain and through the nervous system. And then GSTP1.

which provides those enzymes to detoxify through the skin, like you mentioned, and the gut, the lungs, the liver. And so those are really important. But as you mentioned, one also that helps break down the carcinogens and toxins, that's NAT2, N-A-T-2.

That can also, if it's not working, deactivate the histamine genes that help you break down histamines in food. And so it can increase your risk of mast cell activation if you're loaded with toxins, not able to detoxify, not able to induce autophagy, and you've got a flaming fire of inflammation in your body.

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That's the premier and proprietary genetic panel that Fagran has allowed us to create. So what you're telling me is that Nat2 that kind of deals with herbicides and pesticides, if that is really abnormal, like two abnormal copies or even one, that people will be much more likely to flare with histamine type reactions.

And what can you break down just in real simple terminology what a histamine reaction is? So a histamine reaction, this is how I've learned to understand it, is kind of a protection for our body.

Our cells will release histamines when we're inflamed, when the cells are working to fight a pathogen. And it's a protection. We get congestion or a stomach is hurting and it tells the body to rest.

you know, your defense system is working for you. You need to rest and sleep and, you know, just take it easy. But if we are always inflamed, it can go into mast cell activation to where you're releasing nothing but histamines.

You're sensitive to anything and everything. You can barely eat anything. There's also two genes that AOC1 and HNMT that was put in our body by God to break down histamines that are naturally occurring in food like spinach and tomatoes and avocados and jalapenos.

And so we have that great system to break those down. So if those genes have a variant or a SNP, then we're also sensitive to those foods.

Glutathione, NAC, and Detox Support

And if you have NAT2, it makes you really sensitive. So it's beautiful how everything connects and I love it. But that was a long explanation of histamines.

So Katherine, does this mean that a person has to avoid histamine foods altogether? And that's not what you're saying. So unpack that a little bit more for me.

If you have the AOC1 or HNMT gene SNP, it just means that you need to learn your body's reaction to know what your personal load of histamine tolerance is.

So you may be able to eat an avocado every day of the week, but if you combine an avocado with tomatoes and jalapenos and spinach, bananas and oranges, all of those are high histamine and that's all you eat in a day, then it's overload.

And your body is now going, whoa, hold on a second, you've just given me way too many histamines. That would be me. I can eat the avocado every day, but you throw in anything else and it's like, I'm going to have an upset tummy.

My nose is going to be running like a crazy woman and I'm not going to be happy. Sometimes with my daughter, we realized it was three days of her eating high histamine food, but it took three days of her eating the same thing.

You know how we do, we're creatures of comfort. We eat what's in the fridge until it runs out. And so it was not until the third day that her stomach got so bloated.

And she's like, I look like I'm pregnant and I'm constipated. I'm like, well, what have you been eating? And she said, well, I've had the same all healthy foods for three days.

And I'm like, oh, those are all histamine foods. Let me go back to your wellness blueprint panel. And sure enough, she had a SNP in her HNMT gene that we had forgotten about.

So it was like, oh, you just need to back off on the histamine foods. Well, so we've unpacked that autophagy is dealt with with DCI. And if your child has their non-verbal and they have autism, we typically recommend two twice a day.

And that's what we recommend. I've seen beautiful results with that too. It's really encouraging. Now, for detoxification, depending on the types of genes that you have and some of the other things that are going on, we use one of two things, or potentially both together.

One is called glutathione that you mentioned, the body's master antioxidant, the master fire hose, and it also chelates things, meaning grabs bad guys, but it puts the fire out.

But then can you talk to us about that one gene called CTH that might lean us toward NAC? And I'll let you explain what that is. So in our body's chemistry, CTH is the gene that provides the instructions for cysteine, for us to make cysteine.

And cysteine is the precursor to glutathione. And so we know cysteine in the supplement world as NEC, inacetylcysteine. And a precursor means comes before.

Okay. Yeah. And so that gene typically needs to be working before we can even create the proteins to make glutathione. And so it's pretty important. And so NAC is what we would take if that gene's not working.

Yeah. That has been around for a very long time. And when people have had Tylenol overdoses and they go to the emergency room, they get Mucrimist, which is NAC, essentially, nebulized.

And then also you will not nebulize, but you can do that to break up. secretions, but it can be used to pull the Tylenol and hopefully not insult the liver as much.

But the other place that we like to use the NAC for the, and cysteine, it stinks like sulfur, rotten eggs, glutathione just stinks. So now there's multiple ways to take it.

We have a watermelon and an orange liquid, glutathione. that we recommend. And we can put that into our link at the end of the podcast, into the Shopify store that links up with the podcast, along with our Wellness Blueprint, which is where it's all at.

And we thank LeBron for sponsoring us because that allows us to have all this insight into how our beautiful bodies

work. But then when children and adults are struggling with anxiety and also clogging up their liver chemistry, they tend to flip over into these neuro-excitatory pathways where it's called the quinolinic acid pathway and the kynurenic acid pathway.

And using N-acetylcysteine, NAC, when that's present, like severe anxiety, fight, flight, freeze, or fear all the time, just, you know, going crazy. We tend to use NAC and you can use higher dosages too, like for an adult up to 3,600 milligrams in a day, that's a ton.

And that is better given, you know, 20 minutes before a meal, glutathione can be with or without. And there's also kind of a nice liposomal glutathione that's available in a squirt form.

And you can also put it on the body. So if you've got a younger child that won't take stuff orally, we can apply it to the body. And I've used it rectally too, like have a compounded glutathione suppository that we send to a compounding pharmacy.

And we can use that pre and post surgery in addition to IV. So when people check their total toxic load and there's a lot of pesticides and herbicides, when we identify these vulnerabilities on their genetics, If they come in quarterly and get like a big bag of glutathione, well, it's not such a big bag.

It can go in a small little thing and just a slow push or a slow drip. It just helps clean everything out and it's really wonderful to have. Can you tell me when you give the glutathione suppositories and what situations other than surgery, or is that the only time you give it?

No, it's interesting that you brought that up. We have had some children here in the practice that have rare syndromes. And one little guy had a syndrome where he had anal atresia, and they basically made a new rectum.

And he was really struggling with constipation. So we used the glutathione suppositories. So slide it in, and it gets absorbed in that rectal mucosa into what's called the entero, or liver, and, well, gut and hepatic circulation goes up to the liver and kind of clears all that out and it really helps with constipation.

Now the other thing was we had a baby with a seizure disorder and you know she very rare like 16 in the world and when they came to the practice I'm just like I'm just going to do the best I can to help your daughter not have as many seizures and based on the blueprint She has a feeding tube because neurologically she could not suckle and have food orally.

And we compounded several things, CoQ10 and glutathione, and gave it through the G-tube. But then we inserted that rectally, too, for her. And so that was just a way to help her detoxify.

And this sweet little baby girl went from having, you know, over probably 300 seizures a day down to five or six. And so that was a yay, you know, just something that was so wonderful.

Yeah, that is wonderful. That's amazing, like a miracle. So what were you saying that you saw on the Wellness Blueprint that showed you about her genetics that you needed to address?

Well, she had a combination of GSTM3, which is glutathione S-transferase mu gene, which means that you can't clean out your brain. And so she built up, you know, debris and garbage and just lacked glutathione to help keep things clean.

And then I think, I don't think she had GSTP-1 for the skin. And so again, GSTP-1, we almost always see in eczema, but we also see it in recurrent bladder infections.

You know, like you mentioned, the gut, respiratory sinus tract infections. So those are… In teenagers, I see acne. Like, you know, they're doing everything they can to get rid of the acne, but yet they're not getting glutathione.

Yes, the body's master antioxidant. So I'm so glad you brought that up, Catherine. So I wanted to talk a little bit

about glutathione because, of course, this episode is about autism and how to help your child with autism take out the trash.

But when you see recurrent urinary tract infections, but also in adults that have interstitial cystitis, many times they don't have that GSTP1 chain, and taking glutathione will really, really help.

But for kiddos that show up with recurrent ear infections, asthma, bladder infections, UTIs, using glutathione is really helpful. So, and then, you know, if they have GSTM3, then we can improve cognitive function with that.

All right. Well, Katherine, thank you so much. So now we've identified if your child's hangry, we know that they have autophagy gene issues. Yes. But if doing the Wellness Blueprint is a bridge too far, reach out to Hope for Healing, the Get to the Root podcast, And we will let you know our favorite DCI, and if your child's nonverbal, do two, twice a day.

Genetics, Wellness Blueprint, and Closing Remarks

And you're going to see this calming, less ups and downs, that emotional dysregulation, and Then, if they have detoxification issues, like for example, we've talked about this in some of our constipation episodes too, but you can assist your child by giving them a little bit of glutathione.

You will do no harm. by giving 200 to 400 milligrams of glutathione a day. If there, I'd say one and a half to two years old. You know, the official diagnosis of autism typically isn't assigned by a pediatric neurologist until two years of age.

But most parents notice something's going on much earlier than that. With that in mind, it's so beneficial to have your child's wellness blueprint or newborn panel completed as soon after birth as possible.

I think it's just something that you put the money away to invest in so that as soon as they're born, you can do this so that you know exactly what their vulnerabilities are.

And you can just have the guidebook that we've all want as a parent to know just what's best for our children as far as everything, food and supplements.

And I just think, how did we, I didn't parent with this when my kids were babies, but my goodness, we would have spared so much just ear infections and I mean, all of that, we would just spare their gut and the acne later on.

It would have just been so much better. Yeah. You know, I would like to give a shout out to Fagran. They're the sponsor of our podcast, and I've mentioned it before.

I'll say it again. The Wellness Blueprint is very reasonably priced. And what we offer here at Hope for Healing, anyone, anywhere in the world can do a genetic consultation with you or one of our other genomics providers.

You don't have to be in the state of Texas because it's just dietary recommendations on how to get your body functioning. So, there are many different companies that offer genetic testing, but in my exposure to those, the reason I love Fagran is that it's very reasonably priced.

There's other panels, but the time, the cost, and accessibility, that's what I love about the Blueprint. even comment on how fabulous Fagran is because the panels are systematic to our body.

It is really a blueprint of how to have excellent health because it's the immune system, autophagy, detoxification, methylation, mitochondria, all of the main systems that fuel everything else in our body so that the whole system is running effectively.

with that wisdom of knowing your genetics through foreground. Yes, functional medicine is called the systems biology approach. Someone asked me this yesterday.

I said, well, our body's a symphony. And if one part's not functioning, it sounds very dissonant, or it sounds off key. And the cogs in the machinery just don't work.

And what you said about the panels being designed by system, it's so true. It is so true. Thank you so much for that, Catherine. And so this is our third installment of our autism series.

Number one was about what you can do in your household, the power that you have in the kitchen. Number two was about inflammation. And today's episode was about why is my child so hangry, and that's autophagy.

and also how to take the trash out. And that's detoxification. So we will take a deeper dive into other systems down the road. Thanks again for having such great insight into all of this, Katherine.

I so appreciate you. And I'm glad that you're a team member here at Hope for Healing. And we're here to empower families on how to create excellent health in their own children.

Thank you for having me. Thank you. Have a good night. Bye-bye. Bye. Thanks for joining us at Get To The Root with Hope For Healing. If this episode helped you, follow and share it with someone who needs it and leave a review.

It helps others find us too. For a free consultation, visit our website at GetToTheRoot.com with a number two and schedule a welcome call. We'll see you soon.