Genes' Role In Making You Susceptible To Diabetes Transcript

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Introduction and Guest Background

Hi, everyone. Welcome to the Reversing Type 2 Diabetes Summit. I'm your host, Dr. Beverly Yates. Today. It is my wonderful, wonderful honor and privilege to interview a dear, dear colleague, Carolyn Ledowsky her expertise on MTHFR Genetics.

What goes on when people have these particular genetic considerations, how it affects your blood sugar, insulin resistance, excuse me, gestational diabetes, pre-diabetes, type 2 diabetes, all kinds of things around glycemic control and blood sugar regulation.

This is an important topic and one that isn't. I don't feel commonly known in the general public or among other health professionals. So I'm delighted that Carolyn can join us for our summit.

Welcome, Carolyn. Oh, thank you so much, Beverly. I'm really looking forward to this conversation. Absolutely. Absolutely. I'm glad you could join us.

And we were able to work out all our scheduling things. It came together. So, you know, a title for this session could be How your genes can make you susceptible to type 2 diabetes.

And let me back up just a moment and talk a little bit about Carolyn's wonderful background. She's the founder of MTHFR Support Australia. She's currently undertaking her PhD at the University of Technology in Sydney, Australia, where she's investigating menthol folate versus folic acid in women with recurrent miscarriage.

This is one of those topics that absolutely needs more research. And thank you, Carolyn, for being a leader that way. She's a health scientist and a researcher natural back in Australia and has her degrees from Sydney University, from Duke University and from the University of Maryland.

She's spent more than a decade studying chronically ill people from all over the world and help them with their health. And often looking at the details of this genetic mutation around the MTHFR gene and or associated methylation disturbances.

Now, for those of you the general public who like methylation, hey, this stuff has potent overlap between inflammatory responses, insulin signaling all these other signals that go on throughout the body in a direct impact on the ability to have a safe, healthy and consistent blood sugar level.

And sometimes we just need some help. So this session is intended to give you some more ideas of places to work for your own health benefit. All right, Carolyn. So let's go to our questions and then we're going to have another an additional conversation that you and I had mentioned right before we started recording.

So first off, what are the key genes that might predispose someone to having type 2 diabetes? Okay. Very good question. It really I think through closing, what we understood is that there are certain genes that predispose people to, you know, having a negative reaction to either the COVID virus or the vaccine itself.

Inflammation, Genetics, and Diabetes Risk

And here in Australia, as you may know, we are we were many people were actually had to have the vaccine. They didn't have a choice, but they had to have the vaccine.

And so what we did is we we looked at the underlying inflammatory genes like interleukin six and CRP TNF Alpha, and we said, okay, is there a predisposition to having chronic inflammation?

And when we saw that there was and we we tested those inflammatory markers in the blood, we saw that a lot of the people that were chronically ill, particularly with diabetes and and chronic health disease, cardiovascular disease, we saw that they had these predisposition to having these genetic snips that caused an increase in in inflammation.

And so I deep dived into the research and looked at these three genes and thought, you know what, this is big. We have not been paying attention to this because these genes that predisposes to having these inflammatory cytokines because don't get me wrong, these inflammatory cytokines are really important.

They're there for a reason. And like everything, we need good levels of them. And so they help with the homeostasis, they help with signaling, they help getting inflammation under control.

And they're they're, they're meant to be there to help us. But when they're in excess, it actually changes the signaling pathways. And indeed, I think it's a really big contributing factor to cancer as well, because it actually not only changes signaling but changes cell structure.

Yes, You agree? I do agree. I think these things are related. Please go ahead. Yes. And so what we know then is that a lot of these metabolic diseases that we're seeing is caused by excessive inflammation.

And so when we look at genetics and obviously there are genetic susceptibility, and these these susceptibilities for having these inflammatory genes means that they up regulated, they're producing more interleukin six, more TNF Alpha are more CRP than they should be.

And so that excessive signaling that excessive inflammation is actually having a direct effect on what goes on in your metabolism and so it affects your leptin control, which regulates your appetite, it affects the signaling of insulin.

So all these things that we need for good blood sugar and insulin signaling is disturbed by having these excessive inflammation in the body. Now, in addition to having genetic snips, there are also environmental factors that will trigger inflammation.

So a great example is for exposure to mold. So if you've got exposure to mold, that is going to increase your histamine, increase muscle activation, and what does that do that triggers interleukin six.

So you can get the double whammy and things like interleukin six will trigger the the histamine and histamine will trigger interleukin six. So we've got all these environmental factors as well.

Lyme, gut issues, what we call LPS lipopolysaccharide that can affect our gut. They can all trigger excessive inflammation and if you don't get it under control, that's when we start to see the metabolism being affected because it starts to affect the signaling process to keep our metabolism under control.

Okay. So I think, you know, there will be people nodding their head because they were like, oh, wait, I know. I was, for instance, exposed to mold or I noticed my metabolism became sluggish after, you know, a series of things and start to realize that these are triggers and it starts to do a real thing that we can experience where we find maybe weight gain becomes much easier, or maybe we have foggy brain or now we have joint aches and pains.

We have other things that often get completely dismissed when we go to seek help, or we're told, Oh, that's normal for your age, or Oh, everyone feels this way.

You know, it's like the illness piece is what gets normalized. Yes. And more so now, because unfortunately, the way the medical system is set up, it's time constraint.

It's financial constraint. So you come in, you're not feeling well, You've got joint aches and pains and blood sugar dysregulation. But I can't. What can I do in 15 minutes?

The only thing I can do is give you a pill. And that's the problem, unfortunately, that that's the nature of the beast.

And so this is why these summits where you're doing such an amazing job, because we need to empower our listeners to be able to say, Hey, I'm hearing what this with this particular practitioner is telling me, but I'm not going to buy it because I know that I can do certain things to reverse my diabetes or I know that, you know, by my weight has has little to do with what I'm eating.

It's inflammation or it's toxicity. It's all these things that we need to consider. And I think if if people are aware, because unfortunately the way the system is with chronic conditions, they fall in a big hole and it just then becomes medication after medication after medication and there's little hope and there's little way out.

Whereas these summits provide a really great impetus for people to say, you know what, no more, I'm going to take control of this. I like what I heard on that summit and I'm going to make some changes.

Absolutely so. And so if someone has these genes, what can they do about it? Okay.

Environmental Triggers and Case History

So there's as you quite rightly said, there are certain things that we need to do. So when we're whenever we're evaluating a patient and their chronic health, we will always have them a myriad of things we want to be looking at.

So the first thing is a very detailed case history and what we're looking in that case history when we're talking to the patient is where do we believe that genetics and the environment intersected?

And what I mean by that is, sure, you can have genes. We all have mutations. We all have lots of them, but it doesn't necessarily mean they're always going to be a problem.

What usually triggers it is some sort of environmental influence. Now, that environmental influence could have been living in a moldy house when you were six.

It could have been family abuse. It could have been an illness like, you know, multiple gut bugs that were never really addressed and antibiotics were given instead.

And that affected yet that function. It could have been exposure to environmental toxins. So when we're talking to a patient the first time, we're trying to find out, all right, when do we think the process was started?

At what age? And by being able to do that in your detailed questioning, it gives you an idea of what you've actually got to do to undo it. Because think of genetics as a pothole.

And if you're driving down a freeway and your lane has a lot of potholes, it doesn't really matter how good the car is, you're going to damage it, right?

You're going to lose a wheel or affect the suspension. And yes, you might get a bit of rain and that's going to make the pothole bigger and bigger and bigger.

But if I come in and plug it up with my road crew and I fill that pothole, as long as you put petrol in the car and you see me look after the car, it toodles along quite well.

Sure, you might have a bit of rain and hail and things that might put you off your pass a little bit but you come back on and that's how I look at genetic susceptibility.

If you do not plug up that pothole. So if your tendency is to have say we'll get on to MPH, but if your tendencies, you know, folate deficiency, B12 deficiency and by the way, you've also got chronic inflammation, then that's a major pothole to your your ability to be healthy long term.

Okay. That's good. I'm sorry. No. So I was going to say so, but the environment is in in that environment, if you get a gut bug, it sets you back a little bit.

But then you get a virus on top of it, then you get exposure mode. And as you get older, these environmental influences hit you harder and harder and harder.

But because the pothole hasn't been plugged, your ability to come out and recover is compromised. So when we look at that first appointment, we're trying to find out what are the potholes that have to be plugged and right now what's going on and to work that out, we do a series of bloods, we do organic acids testing.

We might do mold testing if we suspect that that's a problem and so we have like a big jigsaw board and we say, okay, what piece do we need to put on first?

And often it's inflammation is the number one thing. Dampen it down, get rid of it, get it under control, because when that inflammation is rife, every signaling in the body is awry.

And so you have to it's usually one of the first things we try to do is dampen the inflammation. That makes complete sense because we know that inflammation can really force the expression of all sorts of unfortunate things that are, you know, I think of them as lurking in our genetic tree.

Right. Becomes that epigenetic expression. So exactly. You know, you and I were talking before we started recording about the point of view around the old 1950s advice when it comes to type 2 diabetes pre-diabetes, right.

Of eat less and move more. And in today's world, it is not enough People are doing that and they're not able to be successful. It's kind of shocking, but things have changed and changed quickly in the last 30 to 50 years.

So what are the key lifestyle factors that people need to understand if they currently have type 2 diabetes or if there's susceptible to it? Maybe they've got pre-diabetes or, you know, diabetes in general runs in their family.

Yes. Okay. So we always say this, don't we, Beverly? But gut, gut, gut. And being able to understand if there's this body bacteria that can actually be affecting your blood sugar control.

So, for example, if you've got yeast, so you've got Klebsiella or you've even got Morgan Taylor, which increases histamine, it's going to influence the way you eat straight away because you have to feed the bug.

To feed the bug, you've got to eat carbohydrates. If you don't, you get a headache and so there's like really simple things that people say, my blood sugar is out of control.

But you gave them 2 or three weeks on a bed of garlic tablets and guess what goes away? So really simple things like being able to understand if there's any this biotic bacteria that could be triggering it.

Lifestyle Factors, Gut Health, and Detox Support

Because remember that this biotic bacteria sets off inflammation in its own right. So that is really important. Being able to understand what is the reason for the weight gain for a start.

So if there is the weight gain, we look at a variety of different things. So for example, if you are not getting rid of toxic estrogen, which is a major issue for men and women because our environment is so estrogen unique, we have to make sure we're clearing toxic estrogens.

If we don't, you're going to hold that weight around the middle. So, for example, two key genes that predispose you to that is the C, Y, P, one B1 and the comt gene.

And essentially what that means is these phase one, phase two liver pathways that are meant to help you get rid of the toxicity for both estrogens that you get through your environment.

So every time you pick up a bit of a credit card receipt, every time you drink out of a plastic water bottle, you are affecting your estrogen in your body.

And you're you're almost causing like an estrogen excess. So being aware that there are certain plastics, there are certain things like even a coffee, you know, there's takeaway coffee cups.

They're not great. We need we need to be taking our own coffee mug and we need to be avoiding receipts. So even, you know, tapping on and tapping off with your phone when you pay is a good idea.

And when they say, do you want your receipt? You say no, because you've already got your receipt on your phone. So little things like that. And people that work with receipts, making sure they're wearing gloves all the time because they shouldn't be handling it because they are endocrine disrupting hormones in those receipts.

So understanding white Now, also remember, the more toxicity you have, the more fat you need. And so if being able to understand, if you're detoxing properly, are you able to detox many, many people with chronic disease cannot.

That's why they are so super reactive to any sort of supplement. I mean, how many times, Beverly, have you heard someone say, Oh, I can't take any supplements, I just react?

Yeah, they're active Very. Very reactive, and they're the people whose detox pathways have shut, They've closed. And so what we do often with chronic health issues is we pre tox, we don't detox, we pre talks.

So we work on, you know, bile acids and gall bladder and liver support without detoxing. So little things like that because you're going to need more fat the more toxic you are because that's the only storage site for the toxins is fat.

So you can assume that if someone is overweight, it's all to do with their food. They're eating too much because very rarely that's actually the case.

It's interesting, right? Interesting. Yes. And inflammation is going to set this off. So the key things to understanding the weight, for example, and also sleep, you know, if you're not getting enough sleep, that's going to affect your weight as well.

So there's so many things that we need to be considering when we're looking at type 2 diabetes and when we're looking at chronic health. It's not as simple as well, let's look at your diet.

Obviously that's important. And avoiding inflammatory type foods in your environment, in your food, you know, grass fed beef and non-hormonal chicken and, you know, organic fruits and vegetables as much as you can afford.

They're all important. Avoiding grains, I think is really important because they're so inflammatory. So there's many, many things that we cannot we can do and address with without it, you know, changing your life to the point where it's ridiculous, but it's looking at the basics and all the cofactors like, you know, what's the zinc doing, What's the iron doing?

Do you have enough iodine I find in the US without US patients, the the assessment of thyroid function is very poor and you very rarely, if ever, check iodine levels because they're so incredibly important for thyroid function.

So if your thyroid activity is slow, you're going to have white issues, you're going to have sluggish metabolism. So the basics and getting the basics under control is so incredibly important.

Just I mean, we are so thyroid and selenium deficient, which is all about thyroid support in our diets now because of the processing of our foods that I think everybody really needs to very regularly check iodine and selenium levels and our glutathione for oxidase enzyme that is key for, you know, breaking down toxins is selenium dependent.

Our thyroid is iodine dependent, but very rarely we have we go to great pains without us patients to actually check iodine because it's just something that you don't do.

So I think small things like that can make a big, really big difference. And as I said, getting inflammation under control. Absolutely. Inflammation is the name of the game and you know, when you think of the things that disrupt weight, disrupt metabolism, disrupt mood, disrupt people's skin, certainly disrupts people's gut health.

I mean, there are just some really clear symptoms, you know, the gas and the bloating, difficulties with elimination, other unpleasant symptoms. There's so many ways inflammation is can show up.

It can certainly affect the quality and the depth of someone's sleep. These are whole person like lived experiences, these things that where people will struggle.

So what nutrients? Carolyn, do you recommend for people to support their genes and help them with type 2 diabetes? Well, my favorite anti-inflammatories and the the anti-inflammatories that the research is really well supported is quercetin, obviously.

And it's it's probably one of our best natural antihistamines. So if anyone does have exposure to mold and muscle activation, Quercetin is awesome. I really like black human seed oil, Nigella City-The it's called, and there's really good evidence about it being a very potent interleukin six decrease up.

It also has really lovely epigenetic effects. So black human seed, it's it's used a lot in the Asian populations, particularly in the Indian populations, and use it in their cooking all the time.

But there's been some really good evidence around that. Other polyphenols like green tea and turmeric, really good anti-inflammatories that have direct impact on these pathways and interesting supplements that we use in our pre talks is things like hydrogen water has a really, really good evidence around being a potent interleukin six degreaser.

So, you know, you don't have to always go with the medical drugs for inflammation. There's some really good evidence around natural herbs and nutrients that can reduce that inflammation.

Oh, right. So good to know. So good to know. You know, I think when we consider the situation for human health around the world and we see this shocking, in my opinion, increase in prediabetes and type 2 diabetes, you know, we see a situation where we have children as young as eight, showing up with type 2 diabetes.

That should never happen. And we also see, interestingly, the rise in adults of type one diabetes that again, that used to never happen. You know, and I have a theory.

Can I take your theory? Theory? Yeah. What's your theory? Let's talk about that, because I just I'm like this can't go on. It's not it's not a good trend at all.

So I have a theory, and the theory is come out of my research with fertility and the work that I'm doing around folic acid. Now, we fortify here like you do in the US foods with folic acid.

And folic acid is a synthetic form of folate and it must be converted by the body to the active form of folate, methyl folate to be used to support our immune system, to support fertility, to support brain function, to support, you know, our detoxification, etc..

But what the research is showing us is that, well, let's go back a step.

Folate, MTHFR, and the Folic Acid Debate

The reason that folic acid was introduced into foods is because they found that there was certain communities that had a high rate of neural tube defects and they said, okay, this isn't we shouldn't allow this to happen.

These people, these communities don't have the means to take a supplement. And they they are not eating a lot of leafy green vegetables where we get our natural flights from.

So let's fortify the grains in a particularly it started with corn flour because it was a lot of the Mexican populations too, that they were most concerned about.

And so they started to fortified. And instead of saying, well, we'll just fortify, you know it to though that at risk of pregnant people or preconception people, they said let's fortify the whole community.

We don't care if you're for all your 94, we're going to make sure that you've got these fortified folic acid. Now, the we were only ever meant to get 100 micrograms a day.

It's now closer to 200 micrograms a day that we are getting. And this is a potential problem because folic acid needs a certain gene to make it the active folate.

But that gene, that enzyme can only cope with 200 maximum 300 micrograms a day. So most of the nutrients and certainly the prenatal multi vitamins that women are taking are 800, if not a thousand.

So, okay, you've got 700 micrograms that can't get used. What happens to it? Well, I just went to Zurich to talk to the researchers there, and I went to London to go and present my research there.

And the Zurich researchers are saying that that excess folic acid is actually inhibiting the activated folate in getting into the brain and getting into the placenta because it's blocking the receptor.

Now, if our brains only use methyl folate, they believe that is contributing to A. D. D., ADHD, autism, etc.. If a child cannot get methyl folate through the placenta, and that's the main form of folate that mum is going to donate for the child's growth, then it is going to affect their health for life.

And the research says that what a woman does in pre-conception in terms of getting activated folate will not only affect the health of her child for life.

So we're talking about the incidence of chronic disease. It will affect their children and they now believe their children's children. Wow. Multigenerational. Wow. Multigenerational.

So instead of saying, well, we've got mandatory folic acid fortification, we've also got voluntary. So a lot of people, particularly children, are getting ten times the amount of folic acid they should be.

And what is that doing? It's stopping the active folate. And I believe, contributing to chronic disease, chronic mental health issues, diabetes, etc..

Wow. That's my theory. Yeah. You know, as you lay this out, that is absolutely food for thought. It makes sense that you see these rises because people have been really kind of in the squirrel cage trying to figure out what all is going on.

And I have felt that we have changed so many things in our environment in the last 30 to 50 years, you know, whether it is exaggerated toxins, whether it's chemicals you can't spell or pronounce that are in processed foods.

You know, one of my all the time with my patients is if you can't easily spell it and pronounce it, then don't eat it like we need to just keep things a little simpler.

Yes, that's a really very good. This leads me to ask you, Carolyn, another question then. So if people are not well served by supplementing that, say, folic acid strictly as folic acid, as a member of the folate family, because it is indeed synthetic, are they is there such a thing as too much of methyl folate?

Like where are the lines here? Oh, good question. Well, where folic acid can build up missile folate cannot. There is no mechanism by which it builds up because it's inactivated folate and it's water soluble.

If you don't use it, you weigh it out. Okay. So it cannot build up. So the my biggest question to the health

policymakers here in Australia, if this is the case, why are we still recommending folic acid?

Why don't we just recommend methyl folate, changed the terminology and accept the fact that methyl folate supports folate levels as good as, if not better than folic acid.

Why are we holding on to folic acid just for the sake of it? Well, why? Probably because it's very cheap and it's very stable. You said it. Yeah, yeah, yeah.

I've been hearing about this on and off for about almost 20 years. This is the most detailed explanation I've had. And, you know, as I think about part of this journey, when you look at policy, a lot of the times people make policy and happens enacted wherever we may be in the world, often don't have a background in science, they don't have a background in nutrition, they don't have a background in physiology, etc., or actual health aspects of health.

I was just talking to another person who is on this I'm at about this topic that we need more people in the room when these decisions are made who have a wide variety of backgrounds.

Otherwise we kind of get stuck in something that just doesn't make sense. And so yeah, something is shelf stable. Yeah, it's cheap, but it's not effective is what I'm hearing you say.

In fact, it's simple. It may be for certain people, people, particularly people with polymorphisms, because their problem is that this excess folic acid actually downregulate CMT of our gene even further so that that will definitely compromise immune function and it's definitely going to predispose them to more chronic diseases like diabetes.

So we need to be saying too and I did meet with New South Wales Health and they were fabulous. They actually said, okay, we are going to try and start the conversation.

We can't wait for your research to be published, but we're going to start the conversation to say, let's see if we can change that. Just the terminology for now and recommend folate and then leave it up to the individual or the medical practitioner to recommend the form.

That's great. That's a first step. That is a really sensible first step. And my aim in life is to make sure we follow that through and we actually stop as much as we can.

Folic acid in supplements. I really think we've got to stop it because we know that the enzyme that is meant to convert it and use it is not going to do it.

So we've got to. So I think people need to really evaluate the quality of the supplements they're taking. And cheap does not necessarily mean best. So, you know, again, education.

Beverley there's another summit for you, education around the forms of nutrients and vitamins and supplements that are actually beneficial is really important and great.

That's a great idea. Go ahead. Yeah, so I think, you know, and it doesn't mean that everyone goes away and substitutes folic acid for metal folate at the same dose because some people are going to need a little and some people with the fiber polymorphisms will need a lot more.

So in my fertility patients, the normal average, everyday person on the street can only get access to 500 micrograms. But in my recurrent miscarriage patients I can use up to 5000.

So this is where the genetics picture comes in, and that's why it's so important. Beverly because it's not a one size fits all. It's being able to look at and tweak your individual genetics to say, how do you Beverly, you've got a few potholes here.

Let's plug those up and let's go forward and make sure that that no matter what the environmental insult is, whether it's a virus or COVID or, you know, got staph or whatever, your body is able to deal with it.

And if methylation is deficient, it's going to predispose you to not being able to cope with these insults that then push you down that more chronic disease pathway.

This ties it all up with a bow. Thank you so much. You know, one of the things that's interesting to me when I'm hearing you say I can think of so many other parallels, you know, maybe we do a summit together right on that topic of what's the right form of a nutrient and for whom?

Because implicit in all of this, Caroline, you're saying test don't guess. Find out if you have the f r polymorphism. So you know, if this is relevant to you, make sure that whatever nutrient form you're using is the one you can actually benefit from.

I know of a parallel. One example would be with cardiovascular health, congestive heart failure, atrial fibrillation, things like that, particularly with congestive heart failure, though so many people over the years would come into my clinic early in my practice with just buckets of, say, coenzyme Q10.

And I was like, I wonder why they're not well, well, in the early 2000s, once the human genome sequence and we found out that some people do not fully convert coenzyme Q10 all the way to ubiquity all.

And so now you people that actual supplement, you pick one off, oh, you know, the angels start to sing, the sun comes out, you know. They're heart. It's same as vitamin D is in it.

You know, so many people with a vitamin D receptor. We since we started using a supplement that bypasses the liver. Oh, wow.

Testing, Personalized Care, and Closing Remarks

You know, the the vitamin D levels that they were on ten and 20 and 50,000 are used and they weren't getting any increase in vitamin D. All of a sudden, you gave them one of these and boom, straight back up and that's another important thing is, you know, the genetics around vitamin D, because as you know, for your immune system and your chronic health, it's such an important part of the picture is that that vitamin D has to be good and it's so protective on so many different levels.

Absolutely. I think that one of the things we all have to track is what works for who and when. And so when you see a family history of just abnormal issues with cholesterol, where, you know, they clearly have a vulnerability, some people genetically have high levels of cholesterol, yet they're otherwise healthy and they don't show up in the emergency room with heart attacks.

Interestingly, the people who do tend to be the people with the lower levels of cholesterol, like we have got some of these things. So upside down and as you said, the research completely supports the things we're talking about.

So then you wonder, well, what does it take to get this into the common person's consciousness? And just as importantly, with our medical and health professionals, we all need to be more aware.

Absolutely. And Beverly, the statistic is horrible that it takes 20 years from the research to get to clinical practice. And that's why these summits are amazing, because you bypass that and people hear the research and they they listen to the researchers and they go, Well, I'm not going to wait 20 years.

I'm going to do X, Y and Z now. And that's what we need to do. Absolutely. We got to speed this up because you just see so many more people getting sick with these chronic illnesses and it's not helping humanity.

And we see the consequences of this stuff all the time in people's lives. So we're all working together to make this better. All right. So, Carolyn, as we go to up this wonderful session, again, I thank you for figuring out how we could connect to make this happen.

How can someone listening know if they have these genes? What might they experience would make them say,

Aha, I need to check this out. Oh, well, I think just the very fact that they might have pre-diabetes or diabetes or the fact that they have any cardiovascular issues or family history of recurrent miscarriage or aches and pains that would just have come on that they didn't have before.

I mean, inflammation is insidious. And the problem is it not only affects things like type 2 diabetes, but it affects the joints and it affects cartilage and it affects, as you said, you sleep.

And so I think what we need to do is almost like a health check. And we go, okay, what are all the things that I'm struggling with right now? How's my gut?

Is that okay? Am I going to the toilet every day? Do I have excess fat? Am I eating a good diet yet? I still have white issues. So what is that? Is that associated with toxicity?

Is it associated with estrogen metabolism? Look, I honestly believe the best thing to do is the genetic testing. And we use smart DNA here in Australia.

I've been working with the ladies that run that for the last six, eight months to try and get a really good report. I like it. It's an Australian based company.

They now sell it worldwide, so they actually have warehouses in the US where they can just get it quickly and, and it's takes three weeks, they'll never sell the information.

It it's really good. They've got very good profiles of the genes that matter. There's no point in having 50,000 genes on a report and none of them have clinical significance.

You only need genes that have clinical significance, particularly when it relates to blood sugar, cholesterol, cardiovascular methylation, neurotransmitters.

I mean, all of these things are really important. And I think if someone has struggled with chronic health issues for some time, the way to get out of it is really assess what is going on.

So I would recommend the genetic testing. I would do blood testing and a good array of bloods and I do an organic acid. It's just because that gives you very much the here and now and where your particles are.

And by doing that and being able to plug the plot holes up and understand what do you need to do to get out to get you to baseline, that's the million dollar question.

And so I think it's it's and then once you've plugged the plot holes and you can see yourself coming out, there's a lot of hope going forward in terms of chronic disease because you can actually see how you can try to reverse that.

This totally, totally makes sense. It brings it all together. Get out of those potholes, stay out of the people. Know that they're there. Right. And be able to shift smoothly from third year to fourth year to fifth year and just fly along feeling great again like you probably did when you were a kid.

I think everyone deserves to be healthy. Carolyn, thank you so much for being a part of the summit and helping us here to understand better what are the things we can uncover and look at as we all go to be our healthier selves and enjoy our lives, live long, live well, and understand everyone has their own set of things they have to navigate.

We aren't identical, so let's not fight that. Let's work with that bio individuality. Carolyn I thank you for being a part of the summit. Appreciate you.

You're so welcome. And thank you, Beverly, for putting this summit on, because as I said, without people like you doing this, it means that the information is stuck with us practitioners and people aren't empowered to actually go forward and do something.

So thank you so much. I really appreciate what you're doing. And if anyone wants to find out more about can I, can I say where people can find us? If you're I was just getting ready to say, where do they want to go?

Okay. So our main site is www.mthfrsupport.com.au and you'll find all the information about the genetic testing there. And here we've got practitioners.

We only work online, funnily enough, for 13 years we, we work online because we have patients all over the world and I think this is why I like doing these summits because we're a small group, but we need way more practitioners doing what we do because this is honestly what everybody needs to do that that those three things of, you know, genetics, blood and organic acids can tell you so much.

And I think it's a beautiful way for people to sort of say, okay, I'm taking that first step towards getting out of it. So thanks again, Beverly. You're welcome. Glad to have you here.

All right, friends. So as you listen to all of our episodes and sessions, please share these with others that you know who either have problems with their blood sugar, who care about other folks.

Maybe you have problems with diabetes and pre-diabetes, people who are in general incented to be health minded for whatever reason. We're really trying to affect the lives and help and impact in a positive way.

3 million plus people through this work and some other things that I do. So if you could kindly share it, email, social media, text, whatever works with your network, we would really appreciate it so we can broaden our reach.

Thank you. And we'll see you at our next episode.