Unlock Hormonal Harmony: The Key To Fertility Transcript

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Introduction to EndoAxis

Welcome, Dr. Liz. It's so great to have you here and I'm so excited to dig into your amazing brain. Let's kick it off with something very basic. What the heck is EndoAxis? The great question What have you been working on? Yes So it's.

Endo as in endocrinology and then the Axis that kind of combines all of the understanding of the most superficial in depth hormones. Right. Like putting all the pieces together.

So that was that like endocrinology g pieces together. And EndoAxis became the brainchild name. It's that creation of Dr. Guy Citrin. And he began this journey a few years ago and brought me on about a year ago to help sort out and put together detailed hormone analysis.

And so that's really what it is. It's providing a very detailed view of potentially very complex hormonal stories. But it was really. Yes, I know that. So simplified.

Let's differentiate. I just want to give some context. This is an analyzer for practitioners, for patients. How do people use it and access it? Absolutely.

Yes, this is a great question. This is a targeted program for providers, right.

Who EndoAxis Is For and How It Works

For those looking to really support patients through their hormonal journeys. We are using, of course, patient lab analysis, but it's a tool for the providers to be able to upload the report, to be able to see in real time kind of the classifications of the high level hormonal imbalances that are at play.

And then get some recommendations on where next steps or strategies could be to really provide optimal outcomes for that individual. So that patient. Okay. Awesome.

Mostly a tool for practitioners. I love that there are very few but Often tools for us, so it's great. And then what type of testing can you upload? Absolutely.

So right now we really we started with urinary hormones and specifically with precision analytical in the DUTCH test. So that's the dried urinary testing for comprehensive hormone.

And yeah. My favorite. Yeah. I give you the lovely test. That. A few. Years prior. But we really wanted to have we wanted to start with the metabolite story, right.

Because you can really you can run parent hormones, current sex hormones in any medium. You can do blood, you can do saliva, you can do urine. And you can see what those circulating estrogen, progesterone and testosterone values are.

And you can make assumptions off of those levels and help support patients with their symptoms. And but it's a pretty high level. It's like a you're almost just I mean, the service when you just look at those markers and really to know what's going on hormonally, what are they doing with those hormones?

How are they metabolizing those hormones? How do those metabolites influence their health? Right. And what can those metabolites tell us about utilization, about processing, about environmental areas that we can really further targeted treat to give optimal results for those individuals.

And so I think the only way you can get metabolites in the way you can see that journey is through urine. And so we really wanted to give that deep dive from the get go.

We do also include serum testosterone and sex hormone binding globulin. And then we're just going to continue to grow and adding more blood tests that complement the adrenal pictures, add more inflammatory markers, add an organic acid.

So it's just and even static, my background, my baby is genomics and genetic medicine and environmental health. And so bringing that into how it relates to sex hormone production and metabolism, I think would be will be quite the advanced programing here.

But starting slow and yet powerful and impactful with the urinary form and metabolite Absolutely. Like DUTCH has in and of itself, just has so much that you so much information and data that you've already gathered and then analyzing and going through all of that information takes a skill set.

So let's talk a little bit about I guess I'm curious, is this the type of tool that is going to be helpful for the really specialized kind of hormone doctor?

Or is this going to be a tool that's for a newbie that I'm edging my way into hormones and trying to figure it out? Someone tell me a bit about you and I would go a different way.

So we really want to give high level information.

Hormone Testing Inputs and Data Sources

So when we're assessing those labs, I think a lot of providers, like they see them married and doing urinary testing and they there's so many studies out on especially like our four hydroxy estrone, for example, like we want to know those levels.

You see them in urine what do we do with those results though? And I think there's a lot of overwhelm and almost like information stagnation where it's like, nope, don't want to learn anymore. Like I know what to do.

I know what to do with these little protocols. Let's say in our safety zone, we want to help providers feel comfortable and confident in using this urinary advice, urinary testing tool, especially on their complex patients, but really for anyone by monitoring their hormonal journey.

And I think the way we filtered out it really is built in little digestible pieces. So it says, here's your high level, here's your don't miss these point, right?

If you just want that 32nd bird's eye view. And then we dive in and we say, okay, if you want a little more information here, some more assessment, and if you really want to dive deep and know here are the genomic variants that can be involved in this pathway issue, here are the environmental factors.

Here are the dietary factors. The medications like we really expand and get a lot of more depth and detail in our strategy and analysis section. And there really is something for everyone.

If you're an advanced and seasoned practitioner, but you have a complex case and you just want a second opinion and some different dates. We have. That right.

And then if you're a newbie just right my toes in, I just want to know a little bit like getting used to this first before I dive deeper. Then you can like snapshot notes and still get a really good understanding of what's happening.

Yeah. Amazing. I want to dive into the deep stuff. I'm curious for a practitioner. I'll just take myself as the case study and maybe other providers will resonate.

I edge my way into doing DUTCH testing probably like ten years ago and certainly like over a while then. Like oh what. And you, Dr. Carrie Jones, like you guys were so instrumental in me being able to apply that to the fertility patients that we work with.

And now ten years and probably 100 DUTCH tests later, I am at that place where I don't even know if there's stuff that I'm missing. What are the patterns that you see someone like you who's so well versed in this?

What am I missing from a DUTCH test? And maybe I thought this would could be helpful for practitioners that specialize in fertility. It could be helpful for patients just to hear like how we think about things from this like whole holism, naturopathic perspective that has to do with their hormones and their fertility.

So I want to serve both audiences and I'm coming at it from this. What are we missing? What are we what are these patterns that we could potentially be missing out on that are recognizable to experts like yourself, that we could benefit learning?

Absolutely. I think when we're building out these patterns, it's really it's a relationship. Right. So we're when I was building up the sex hormone patterns, I start with progesterone for cycling women or for women in general about especially for our fertility cases.

Want to know what's progesterone doing in the lead? Okay. And we compare that to their estrogen and then we look at that estrogen detox. And so we're looking not just at a ratio of how much 2 hydroxy is favored over four or six like these intermediates of phase one detox.

But we're also looking at not just the percentage but how much of estrogen is moving into a phase one metabolite. Are they actually transferring it into that, that initial clearance out of the body or is it really high in circulation?

And they have beautiful two hydroxy, but it's only a quarter of their actual astronaut in circulation. That's a problem. They're not bio transforming it through phase one detox right or that that's recirculating it.

And so we called out in our patterns. So it's a poor clearance, a poor initial port clearing form, and then we call out the methylation ratio and the methylation is really it's what we can capture in urine.

It's only reflecting phase two for the category estrogen. So that's the two in the four hydroxy. So we are seeing that ratio and then being able to gauge is it too low, is it too high?

These are all our Goldilocks hormone or is it just right? And how does that compare then to all this other information that we're bringing in? And so it's looking at 12 different relationships, right?

And then testosterone is brought into the pattern as well. In addition to DHEA and of course, the metabolites of the androstenedione five, all the estradiol and all of our intermediate and what that.

Reading DUTCH Patterns and Common Misses

Totaly. Is about that journey. So when we're looking at what could be missed, I think some patterns that often do go nuts. I do think that looking at that initial transference of estrogen into phase one metabolites, I would hear a lot on consultations like, oh, they're two hydroxy is 95% preference.

It looks great for hydroxy nice a low this looks beautiful methylation is looking good it's balanced. I don't think I need to worry about detox and the other estrogens are looking at high end or even above that kind of ideal target luteal range with actually we need to look at that idea of roles of have.

This half. Of that strong getting bio transformed into if you add it up to four and six hydroxy metabolites, we come to half of that as strong or more.

Right. And it's not what's going on there. Do we need help? Is it getting recirculated because of poor phase three

detox, which we're not Catholic sexual.

Right, but right. Elevated. They look like realities, for example. And do we need to do some further investigation there? Do they just need more improvement through phase one by reducing refined sugars in the diet and reducing alcohol?

Is that a problem for that? Right. There's still maybe some areas are increased, primarily fish oils. Right. Decreasing inflammation can help that transformation.

So I think that's one that I'll often see skipped because it's easy to make patterns look great. Right. High chart looks beautiful. Right. Like the other one I would say gets like the low hanging fruit with fertility is looking at the progesterone estrogen ratio, I would say.

And, you know, when progesterone slowly double even below ideal range, that's like half the cycle. That's a about right. Like we need to optimize that progesterone and we need to really make sure that estrogen that balance but another one that I think even if estrogens don't look too hard but patients are struggling maybe with estrogen dominant sometimes that 16 hydroxy metabolite is very estrogenic as an intermediate, it's not nearly as estrogenic as estradiol. But we do want to take that into consideration as well for both our fertility patients and just women's health in general.

Because if you have a patient and they're like maybe their progesterone does look pretty good and it is balanced with that estradiol and maybe we're not too concerned on the estrogen dominance front.

But yeah, here's a patient that's struggling with fibrous cystic breasts and bloat and a lot of menstrual headaches, and they're 16 hydroxy off the charts.

Right. And check and that's an estrogenic intermediate we've got to address. We don't want to miss that. And we to see that in blood, we wouldn't see that in saliva.

So that's a nice one. That, again, you don't want to miss but could easily be overlooked. Those are good. Those are great patterns. So where and this may not be exactly the pattern that you were talking about, but I've seen lately like a higher E three than E one and E two.

So sometimes they even look like they're super low, but then they're over converting to E three and they have high 6oh. E. Curious about that. You half have those you think.

And I agree I do see that one top that a fair amount e three and 16 01e3 is technically chemically speaking 1602 So these are the metabolites or phase one intermediates of estrogen through the c wiki three for enzyme.

So they're both partner to that. The 64 enzyme is a powerhouse enzyme, right? It's responsible for over 60% of metabolism. A lot of our environmental and medication toxins.

I know so it's the 384 and 2d6 that are like our big power hungry ways, right? Yeah. And so I just got the chills. I know where this is going down. It's up to me.

So when we're looking at why an enzyme might be upregulated, we have to look at the promoters upstream for that transcriptional response. And with 384 because it's such a powerhouse and it's involved in so much, there can be medications that promote more transcriptional activity upstream.

There can be medications that suppress that you see really low. That could be a medication as well. But there's met met involvement. There can be supplement involvement like St John's Wort is actually a very potent promoter of the step three for enzymes.

And this is why a lot of especially like antidepressant meds say do not take it right where St John's wort because now because of the Sarah to Nurkic influence and St John's wort necessarily it's really because St John's Wort is

interfering with the ability to get the prodrug, which is the active component of that SSRI.

And so that's. Problematic. That's a little problematic. But you're exposed to a lot of like Zino estrogenic poly aromatic hydrocarbons phenols. These are things that require that cyp3a4 among other enzymes, to react and they're going to be increasing transcription so we can get them out of the body and taking with it the estrogen as well.

And your. Interesting. Environmental especially is, you know estrogens this upregulation of both the 1b1 the four hydroxy. Also. But also that three or and I think that when you can get overlooked sometimes and I feel like one of my biggest things to shout from the rooftops as do not suppress that enzyme but your preference for 16 oh oh yes that is estrogenic.

And yes, we want to make sure we have balance, but don't get balanced by inhibiting that. Enzyme because. It it is upregulated likely for a reason and it may need to be to pull out our toxins or other exposures.

And by that we actually become more toxic. That's ending this thing. Have you seen it upregulate at all with like too much iodine or hidden sources of iodine that maybe we didn't compensate for?

So I think so. Thyroid in general, like over conversion of thyroid can definitely upregulate the transcription of several of our enzymes under active thyroid can actually be a problem as well, but more for the reduced activity for the cyp3a4 underactive thyroid and actually increased five alpha reductase transcriptional response to interesting they kind of like feedback right to try. To yeah so that if you want to jump to that pattern the five sorry say that enzyme again five or even five reductase that one we like is often like feeding like the thyroid and PCOS which are kind of feed each other.

And is it that through that enzyme it. Can be partially through that enzyme, right. It's also, of course, so things like high. Progesterone actually is a big one for thyroid as well.

Progesterone supports thyroid conversion and thyroid balance. And so when women with PCOS, they don't ovulate regularly, tons of of that, they don't ever mature any one of them with any regularity or success.

And so the progesterone overall tends to be pretty low. And if you don't have that progesterone, you don't make thyroid. Right. That's a big one. And so that can just that's more of a trigger for that thyroid relationship with PCOS.

Okay. So when we talk about like the genomic factors with androgen dominance and PCOS risk factors, the s r the it's a the rd5a1 which is the five alpha reductase is that one can be upregulated just genomically, right?

You can have polymorphisms that increase preference for that pathway and that is often associated with PCOS, it's driven by insulin. And so I think the insulin is a factor for that pathway.

But oh god. Okay. Yes. But I think thyroid and and you ask us so hand-in-hand but I think the progesterone more so that's driving the thyroid issues. I do want to circle back to the three or four because the other feature of the St Paul and 1608, these aren't cortical estrogen, so they don't methylation.

So methylation beautiful if not like really high. They're like kicking out all the two in the four. If the 16 and the estriol the 16 you age, you want an issue there are primarily bile conjugated and excreted out in stool, pretty direct.

And so it's sulfate and glucose annotation that you really want to make sure is intact. If you're seeing those build that. And so again, anytime you're working with metabolites of estrogen through phase one support by reducing things that could increase that transcriptional response and a lot of that is decreasing alcohol decrease in environmental estrogenic exposure between and checking in on their meds because they could be on promoters.

Right. And not that we would want them off of those, but that could be pulling that through and then really making sure that they have good gut health, that they're hooping every day.

They've got to get that out and that they're really ensuring that their bile is conjugating in a healthy way. So supporting bile, supporting stool, checking in on their gut health, potentially making sure that they don't have elevations in basically coronaries or opportunistic bacteria that could be augmenting their estrogen clearing.

Sorry, I'm going to work.

Estrogen Metabolism, Enzymes, and Detox Support

Yeah, that's good. I wanted to loop back around two, three, four. Also, as we see that pattern e three is high, six H is high for H is within range. And then 2oh is maybe lower within range than would we still try to.

Have. More of that estrogen clear out of the CIP 2a1 pathway. So without the idea of addendum or something to UPREGULATE one? Yes. Yeah, exactly. Yeah.

That's not my first approach. Always work backwards, work with the gut first. Cause like you're pushing phase one, I think it can be a kneejerk response to want to throw in down when there's estrogen dominant sometimes right which becomes stem in the stomach.

And I but I think there is that kneejerk response to say, oh, let's just give them the dam and it's wrong, but it can exacerbate estrogen symptoms for somewhat for actually, I would say in my experience anyway, a lot of women suffer because if they cannot if they're not getting it out fully right, then you're just pushing it through this one phase and it's stuck in a pool.

It's going to be a problem, really. It's more avoidance of the things that could be pushing negatively through the other two. So the three of four in the one area are the 1b1, right?

That doesn't break the fact that we're hydroxy. We really want to keep out. That one's upregulated by poly aromatic hydrocarbons. I will throw this out to you.

So this is like smoked in charbroiled meat products and cigaret smoke and even like hydrocarbons in the environment. People who live in really densely crowded cities and get a lot of that exposure.

That's also up regulating step three that. Can do both. Yeah. So that's yeah we want to see this one. We want to remove as much as we can. And if you're living in a city of just clean up the air, that's in your immediate space.

But in that case. Right now, the air filter. Yeah, yeah. You really want to like take away the things that you can that would be maladaptive increase the things that are protective.

So fish oils are great for increasing 1a1 such you hydroxy production. Interestingly Rosemary great for pushing one anyone without augmenting estrogen and like creating push into two hydroxy right.

It's more of a supportive nourishing. Way. To go with that the two hydroxy way increasing fiber right making sure that methylation looks good that's sulfate and liquor on addition are working and then making sure really ultimately that they're pooping every day.

Okay start there are like a but. Yeah that's. Also offer. But yeah I think. In a big lab. And so I would see sometimes with providers who because grapefruit is a big inhibitor of free form this is why a lot of meds also say don't take with great great because it.

Inhibits tablet of any. And that can be I've actually seen providers where like because they are getting too much 16 and we want to push it more too we're giving them a little bit of grapefruit every day.

I'm like. Again. I think we want to embrace that. Three or four is working well. We do want to suppress its response because it's likely working overtime for a reason and then we just supplement and support the other downstream metabolites and pathways.

Check the cells from oxidative stress using our nerve to promoters using free radicals, scavengers, antioxidants. Thank you for gluten science. Good. All of us.

Yeah, lovely. So we talked a little bit about estrogen and progesterone disharmony. We talked about these estrogen metabolism pathways are there. I'll just ask you, because I've been I have my own theory.

I don't know that anyone has said yes to this, but I have found that a lot of women with endometriosis don't have classical estrogen dominance like I was taught in school.

But really repeatedly I've seen like the 4he4 OAG is the one that off the charts their other estrogens are usually low and then they're not metabolizing through the other.

So it's just a400he that's elevated and that it's always a head scratcher when I see it, then I'm like, I'm sorry, but you need to go get worked up for Endo and like 95% of the time it's spot on.

So I'm like, I don't know if there's anything to theory, but. It's a really interesting association. I don't know that it's established as a culprit of endo, but yeah, I do endometriosis contrary to what I was taught to.

It's not an estrogen dominance condition. It is worsened by estrogen dominance for sure, right. If you have high estrogen, you're going to make the symptoms intense because you have endometrium tissue outside the uterus.

Right. So. Correct. So all of that tissue would get that response for estrogen. Right and. Right. But so it's actually going over a review article very recently because I'm like so, so fascinated.

We live in a horribly toxic work. And it's a about. You know, estrogen stop on so many hormonal concern. One of it so exposure. Yes in utero is strongly correlated with risk for endometriosis as an adult and I.

Did I see somewhere that also phthalates specifically correlate with the endometrium. Specifically the phthalates as is in the hormone hormonal estrogen. Mm.

Yeah. And phthalates are everywhere. They're in our perfume, our lotions and our, my. 0300 that's true. So that's right. Your hormones. Yeah. Yeah, it really is one that I think that's under valued but it's it is strongly correlated with and Dimitri assess.

Those exposures. And I think and then it's really the retro verdict and the mitral tissue right instead of being for developed fully out into a nice like external flow, it's the reverse flow and that's where that endometrial tissue ends up in that perineal cavity.

And I had this one case of a in school. A She wasn't my case. It was a case study of a gal who had enemy tissue in her nose. And every time she menstruate and she would get a bloody nose, right?

You get epistaxis, you can go anywhere, but it's most likely, most commonly in the pelvic region. And it's going to be wrapping itself around the floppy tubes, around the ovaries, and it's just external inside of that uterine tissue.

So any time you get an estrogenic response, it proliferating and causing problems and causing pain and definitely fertility becomes a a concern. And but because the phthalates can increase are also associated with higher four hydroxy production.

I could see that connection that's interesting that you get a lot and. That's I think. Makes a lot of sense. In my head. That's why I don't like I just kept seeing it and I was like, Wait, you have no okay.

You also have no, oh, you too. And I was like, we all of them have had high for, oh, eight years. And I don't know if there's anything to that I yet to find a study on it.

But definitely at. Least I proxy so is not like. It makes a direct association I love it I love it. You just made sense of

this theory. I'm not sure on case study and.

Yeah. Yeah, I think that would be so valuable because honestly, so many women come with enemy neurosis type symptoms, but they've never been worked up for it.

They they just internally are like maybe I have no right this fear thing and laparoscopic surgery is not something you want to take lightly. So they're always like, let her know, what can you do?

Can you figure it out? And I'm like, We're going to do a Dutch test and then we'll see. And yeah, and this is my little hack to say yes. More testing or no.

You're probably okay, let's work on other stuff and then you can still save the testing for later. If your symptoms. But I will shout out because the other thing that Endo Access does.

So we are a tool to help evaluate complex hormonal pattern, starting with the Dutch, but expanding to zero and expanding to other tests as well to really enhance that story.

But the other big thing that we're doing is customizing formulations based on these foreign right so that providers don't have to like scrap and search and pull like in this product and it's the right dose, I mean, to get this product.

But I don't really care for these other sites. Like, I don't care for all this stuff. Yeah. Like I don't want this other stuff in there. Unless. We give you.

What they need for that pattern and for hydroxy in particular. One of my favorite blends we're using that's beautiful nerf to promoting blend of true rock, which is glue graphene with mustard seed, which is Morris and ace to really help optimize cell for cutting from that oxidative stress of four hydroxy remember four hydroxy.

The big issue is that when it doesn't methyl eight it goes down, the Clinton pathway becomes a34 aspirin Clinton and those are what result in those attacks that over time can lead to oxidative stress, cellular change and even cancer risk.

Right. And that's another interesting feature of endometriosis. There's an increased risk for the medial cancer, which again correlate with four hydroxy right next to her but with sulforaphane stain, enhances phase two clearance and supports the nerve to regulate.

So couples nerve from the key protein to really help improve the production of glutathione and catalase and also DX so that we have these potent free radical scavengers to suck up all of that quite on response and repair DNA, make sure that we're structurally sound.

And so we have blend with the true rocks like a rapidan and morose and A's and then it has a little pomegranate, it has Egcg is a green tea and coq10 and it's just it's beautiful.

It's like I love this combination. It's great for I endometriosis. So it's protecting themselves. It's great for hybrids, which are another one that can be promoted through elevated 16 hydroxy in particular.

Endometriosis, Environmental Exposures, and Targeted Formulas

But yeah. That formulation targeted to that path. I know. And, and I love that this is another fun feature because of kind of that understanding of what enzymes are involved in metabolism.

AAM the blends are really targeting the enzyme, so whether we know if they have a polymorphism or not, if there's a dysfunction in a pathway, we know that enzyme, right that pathway needs help and so we target that with not the nutrients necessarily for hormone but for the enzyme.

That's so. Yeah. Yeah. That's a quick yes. I go, yeah, I love it. Okay, so can we jump to cortisol? And I feel like

that's another big fertility specific area.

And so I'm curious if you can just share like being patterns that are outside of the realm of what most practitioners is though, which is, oh, if it's within the range that does test girls, it's good, you're good.

But like the metabolizing of the cortisol, the metabolizing cortisone, all that stuff that is just so nuanced I find. Absolutely. And yet so important and critical that we don't miss.

I turned away when I if I think back to school, the way I was taught to look at the adrenals was to run an adrenal stress index, not the salivary test.

It's looking at those key points throughout the diurnal curve of free cortisol, and then we make assessments off of that. And I remember at school thinking, man, I'm just crashed.

I have all this super low cortisol and then I run a doctor's and I realize, no, I've just a rapid metabolism. I shouldn't be taking anything and I'll get to this.

So like the free cortisol were so like ingrained to just look at that free diurnal. And that is important because it's showing us in the moment what is their output to like our universal stress are to waking up in the morning and then what is the response to stress throughout the day or are there stressors that are spiking them when they should be starting to decline or not?

Right. So that's not diurnal rhythm in assessing those key points. That's the free cortisol. It's only 1 to 5% of cortisol at any given time. You're looking at those measurement metabolize cortisol.

This is 90% of all the free cortisol that was made on the day of testing. We have to look at the two because it's the relationship between those that has the biggest impact on health and where we want to treat right.

And if you see someone who has beautiful free cortisol, they got this great diurnal rise. They wake up in the morning, they're getting that nice spike in cortisol.

It's within rays coming down in the afternoon. It's nice and low at night. And yet their metabolites only black light. There's a problem with clearance, right?

There's a problem with an intensely total production like that. Free cortisol, that graph is only 5% that most of the free cortisol at any given time you're seeing 90% is not looking good.

What's the discrepancy? And more often than not, we see that pattern with hypothyroid with low, specifically low cellular free T3. And so it goes beyond just looking at a TSA.

T 43 you want to look at the reverse T3 as well. How are they incorporating and utilizing that thyroid and doesn't need help because thyroid and adrenals they are interconnected like we need to treat both.

Now. Ensure that we're evaluating and addressing like what's going on. And now so often I'll see providers like just look at the stress pattern and not at the metabolite.

So just know they'll. Base their treatments off of that. And then for example, if a say they have a really high stress pattern, they're overshooting their morning cortisol or they're shooting up in the middle of the afternoon, but metabolism is low and you're not addressing that and you're not addressing liver health and you're not addressing adrenal support.

And just like that, the nutrients to rebuild, just adrenal function in general, just target fossil title. Serena Magnolia and Chamomile and the things I would call them.

What can happen. On both sides. Drop on both ends because now you didn't treat the root. You didn't treat the fact

that the metabolites were compromised, there was something happen.

All right. That's a really big thing to remember. And what we catch, what we're looking at is that relationship. And again, conversely, you said flat line not to say flat likes you, really low free cortisol.

I mean, public cortisol, it's like through the root, that person's got a lot of exposure to cortisol. That's a lot of inflammation in their bodies. Their liver is exposed to all of that.

That can increase that. In the metabolized. Light. Yeah. Yeah. To be a metabolite that that was produced and circulating cortisol that had to do the liver. So that's a lot.

And then if you were only looking at the free part as arm, we're like, Oh, but they're so depleted, we've got to get that. Then you get more hydrocortisone.

You're putting kerosene on a burning fire. I Yeah. So it's only want to treat the EPA response. We want to calm down the inflammation in the body. That's like a very pro-inflammatory.

No, that's a high toxicity three pathway. Right. To get it out of the body, the checking in on thyroid in that case to the opposite problem and then really address the and yeah, these people are going to feel exhausted because have no like diurnal response, but they're kicking out a lot of cortisol.

So they're like exhausted but inflamed and anxious and agitated. And so these are people where support that inflammation of blood sugar, get them on adaptogenic herbs that are supporting that free rise a little more sufficiently and they're not hypertensive.

Licorice is actually a great herb here because it slows metabolism cortisol while also augmenting immune function and reducing inflammation. Yeah. Is that so that like over metabolizing of the cortisol, is that a need that the body has because cortisol is anti-inflammatory.

So is that too much inflammation? We need to have more cortisol to decrease inflammation or is it the cortisol metabolizing over metabolizing is causing more inflammation?

No, the cortisol is produced because of information. Right. Yeah. So the signal from from the body to the brain is some sort of inflammatory trigger like usually a cytokine IL six.

A big reason why we might see this over metabolized and is actually excess adipose tissue or more metabolically active kind of fat tissue. Adipose tissue releases a low grade level of il6 all of it.

So this is an inflammatory cytokine and that's going to be in circulation that's affecting our blood vessels. It's also going to be crossing into our brain and a rate, hey, got some stress here and the brain's kicking out Ciara right.

Cortisol Metabolism, CAR, and Fertility

Thinking not knocking on those adrenal saying we've got to make some cortisol adipose tissue. It's a unique endocrine gland. Right. And it kind of misbehaves sometimes at no fault of its own.

It's protect it's trying to protect us. That's evolutionarily doing the right thing. But you want to sequester that cortisol a metabolic purposes and actually pull cortisol out of circulation and over metabolize it.

Not that they aren't making cortisol, it's just that it's getting metabolized too efficiently, too quickly. That's there. It's affecting the body. And that means that there is inflammation present.

So the metabolize cortisol is high because there was a response somewhere in the body could be the fat tissue could be pain, chronic pain, joint pains, muscle hands, headaches, it could be another one is more like environmental stressors.

Or even so, 60% of our immune system is regulated by our God. So low grade dysbiosis can be a factor there that's just driving up that inflammatory response in the body.

Yeah, I think of it like the fire hose is wide open. It's think trying to just get it get it naked it out. Yeah. Leading what we have in the moment for our receptors to be like, okay, let's stimulate.

So you're lacking a nice right? Yeah. It's basically like the fires are so intense compared to oh, I need this so that I have energy that's like putting out the fires is more urgent than I have a need to function in my life.

It's like not keeping it around long enough for our brain to utilize that and get that. Like cortisol waking in response to get all benefit from hot rise to get.

The. Neurotransmitter upregulation acetylcholine dopamine response. Yeah Chad. That that's where we get like foggy brain and achy and agitated and tired.

And yeah. And then once. They awaken in response either, yeah, they agree. And that's the ideal it's okay they agree they're making and utilizing cortisol efficiently.

Right. And clearing it if you don't get that rise in the morning. And so this is really something that you can determine in the salivary cars, as would be like the Dutch plus.

So you use the urine for metabolism. Um, but you are looking at the, in the moment production of cortisol using saliva, much more sensitive marker for that.

And so watching that what they call the car the cortisol waking in response before you even open your eyes right you take this first salivary samples of your Abby haven't gotten out of bed you put this little swab in your mouth, you're collecting all that cortisol should be nice and low, right?

Because you haven't had a response yet. But then you open your eyes, you're getting sunlight. Very importantly. Activity of cortisol should be rising like 50 to 160% in that 30 minutes.

And we can see that within a few minutes. We can see that rise starting. So we want to capture that at the 30 minute mark and then we want to capture the 60 minute to see there's a keep rising or does it come down or does it come down too fast?

Are they overly over utilizing or not sustaining their cortisol? But the importance, the really important part is that 0 to 30, right, waking for 30 minutes.

If you're not getting a rise of 50 to 160%, that can lead to all sorts of dysregulation to your immune to fertility, to HPL response rate, your diurnal.

All of our body is very diurnal and it's activity. And yeah, we're not in a good rhythm and that can be seen by that cortisol in particular. We're not going to have that same fertility response that that would be the way to describe that.

But infertility and your risk outlook are. Yeah, I absolutely we spend so much time trying to optimize the diurnal response because that's going to be the foundation for fertility hormone regulation.

So everyone's so focused on those. And if we get the foundation, then we might have a really great house to build. Right. So exactly. Yes, it's working on the root of the deep foundational work that then everything else just becomes easier.

Everything else just happens. To wake up, you die. Wow, everything is so much better. Yeah. I'm light in the morning now. Daughter is the pressure her yang.

Yang yes. And also you know it's going to. Do some jumping jacks or but just get that body moving and I think movement throughout the year just to keep that circadian regulation going we do.

Want to meet and yeah. The other thing that's interesting with the cortisol rise sleep right like I get patients all the time often we get this done to car over time because people aren't sleeping while my horse was asleep.

But it's almost a vicious cycle because if they're not sleeping right, not if you're not going, you know. So if they're not sleeping, they're not getting that nice response in the morning.

They're knocking that rise at sharp rise in cortisol and adenosine are complementary and the brain they buy to the same receptors cortisol blocks adenosine from binding you know making us tired so we feel really energized.

Coffee does the same thing, which is why we get a little perk from. coffee For blocking adenosine provided. But we should. As classical goes down, we should be getting more and more adenosine binding.

We should be feeling more and more groggy, seen, a stimulated is is produced or with norepinephrine surges. And so the more and more AP we get, which happens with cortisol, right?

The more active we are, the more cortisol response we get, the better our adenosine production and the better our response at night. So I will have patients all the time that are like, No, I need to work on sleep, not my car.

I don't not know you actually need that because that will help your sleep. And so I think that. Yes. Oh, that's so good. That CAR are. So important and CAR is very interesting.

It there's some research saying that CAR is actually the biggest predictor of life span than everything else. So yeah, it's like a pretty powerful necessity that our body has to help make that cortisol in the morning.

So very important for all of you non practitioners that are trying to get pregnant after I go get some sunshine, do some jumping jacks like Dr. Liz said, get that and get if you're dragging and you need coffee to wake up and you don't function, your brain is still off before your coffee.

Like those are all the people that need that stimulation of cortisol awakening in the morning. That programs the body for the rest of the day. You don't get that awakening. You're tired all day long.

Yeah, absolutely. Yeah. Go for the walk in the morning with that part of your routine. When you. I love it. I love to drop my child off to the bus stop in the morning because it gets me out and it's 15 minutes in the sunshine and he's.

Mom, can you be a car rider? Can you drop me off in the car? I'm like, no, this is my time of. The time I got a child at all. So. Yeah. So it's so good. Yeah.

Thank you so much for being with us. For practitioners that are listening, how can they get supported with no access?

Launching EndoAxis and Final Remarks

Where do they go to get started? So our website it's www. EndoAxis.com you can sign up to be a provider. We haven't officially launched yet, but we are coming in March 2024.

By the time this is launched, you guys will be out. So yes, look for us EndoAxis.com It's free to sign up so there's no commitment on your end. Play around with us.

Upload some DUTCH reports, read some records, see what the input is, see if you're getting really what we want this to be as a second opinion type system.

Like you just want to run it by another medical professional. You get an automated version of that and then you get

access into our catalog. Of all of our amazing supplements, we had 26 supplements being launched along with the programs, lots of really targeted in my opinion that have beautiful, very targeted blends to address not just the hormones but that enzymatic dysfunction that's leading to these hormonal imbalances.

I love it. And for those of you listening in, I am sure you can already tell Dr. Liz's brain is amazing. Just amazing. So the value for those of you that don't know Dr.

Liz is a lot of the brains behind EndoAxis. So when you get see that report, you can be like, Whoa. This is the creator right here. You guys And Dr. Guy is also really friendly and really smart and have contributed so much to this.

Yeah. Like amazing minds behind this is what I'm getting at. Yeah. It's been a great, amazing experience and amazing team that I've been able to work with and collaborate. And yeah, we're just and the beauty of this is it's just going to continue to advance and grow from here.

We are not limited if you're going through this is my other just have not public service and I'm not going per se but just buy a little plug, give us feedback, give us insights.

We want to know we want to know how to make this really got and and good for all providers so. Yeah. Use us check us out, give us feedback. And. Just know that we're going to continue to grow in advance. I love it.

I love it. Thank you for joining me today, Dr. Liz. And for those of you listening and you will see us again very soon, take care and have a blessed day.