All right. Hey, everyone. I'm going to fix the chat so that you actually can chat. Hi, Dr. Liz. Hello. Good to see you, Michael. You too. It's been a week and a half. How are you?

Good. Hanging in there. Yeah. How about yourself? Feeling better? I know you were a little under the weather, lastly spoke.

Yeah, I got more under the weather and then now I'm relatively better, but I'm going out of town again tomorrow for 10 days for a training in Poland and travel. So we'll see how that holds up. I think I fixed the chat. So if you'd like to drop anything in the chat, let us know that you can see us here. Where you're from and please put the questions in the Q &A. I'll do that one in the chat, but there's a Q &A section that's much easier for questions.

So please put the questions in the Q &A. And let me know if the sound is okay. Last time there were some people complaining about my sound volume, but I do a lot of Zoom meetings and it's usually fine. So just let me know on the audio video if everything's okay. Sound is great. Sounds great. Fantastic.

We'll let some people trickle in for a minute. We're doing hormone Q &A today. Hormones, hormone testing, naturally balancing hormones. Any questions you can come up with about hormones?

Thank you for doing this, Dr. Liz. Absolutely. We got some questions obviously after the last announcement and webinar. I've got a few of them jotted down here. Okay.

I was just copying them down as we were logging in because I missed some in an email. But if you have questions, please put them in the Q &A. Anything related to hormones, hormone testing, the EndoAxis and Dutch testing that we talked about last webinar. Questions about that, about the EndoAxis reports or anything that was on that webinar.

Anything around that you can come up with hormones. So I guess we should probably do an introduction, although we just did one last week. But if anybody wasn't here last week, this is Dr. Liz Bartman. I don't know your exact title, Chief Science Brain Wizard at EndoAxis. What's your actual title?

I am the Director of Education and Clinical Sciences.

Okay. Director of Education and Clinical Sciences. It's her brain that got put into the software that does the lab test interpretations basically. That's oversimplifying it a little bit. But before that, you're with Dutch and helping them do all of their consulting and education around their lab test interpretations.

And you also have a private practice in Portland and work with clients or patients there as well. And I guess we could just jump in. There's some questions in the Q &A. I'm just going to ask a couple that I got out of the emails so that I don't forget.

Sometimes I've done that. And again, please put the questions in the Q &A, not in the chat, as the chat can get going kind of rapid. And then I missed the Q &A in the questions.

So please put the questions in the Q &A. And I had two questions come in around hormone replacement therapy. I know that this is kind of all the rage, natural hormone replacement therapy or bioidentical hormone replacement therapy.

And I think you covered this on the webinar around the Dutch EndoAxis testing. But two people asked what considerations there are if they're doing hormone replacement therapy. One was estrogen and one was testosterone. And I don't know if the answers would be different to those two questions.

Yeah, it depends on how they're taking those hormones. So we are looking at bioidentical hormone and urine. And so if they're on a bioidentical hormone of any type, we will capture that. When you're looking at testing for estrogen, we'll start with that one. It depends on the type that you're taking. If you're taking a cream or a gel or a vaginal application even or a patch, those all represent really nicely in urine.

And you just take it as directed. So you would apply your cream. Usually it's a once daily, sometimes they'll do like a twice daily rotation, but apply it as you would and just collect your samples and you'll see those results clearly expressed in how you're utilizing that hormone and how you're excreting that hormone. With a patch, you do want to collect halfway between your next patch.

So usually patches are twice weekly, sometimes they're once weekly, but you would just do like a day and a half or I usually just say two days on the patch, test on that second day, replace your patch on the third day. And that way you get the steady state. If you're doing pellets, those are often used in the States.

I don't know if they're so frequently used elsewhere, but they're big around here these days. With the estrogen pellets, you want to test and same with the testosterone pellet, you would want to test halfway between insertion time. So if you got the pellet, usually it's like a six week mark to see where your hormones are. And then because that's going to show you steady state. If you want some doctors will say right at the end, so you see how low you go.

So you want to know how much more you want to get up to. But generally average steady state is going to be midway between pellet or injection or patch. Testosterone injection, same deal. If you're doing it once weekly or twice weekly, just collect the test midway through. So you see the steady state average of your hormone levels. And again, topicals with testosterone, topicals.

Testosterone is one that actually stores really nicely in fat tissue. So sometimes providers will just do a really large dose topically on the abdomen and just once weekly dose it. If you do it that way, then you want to do midway between your application. If you're doing it daily, just test as you would as you're applying. Just don't touch the sample card with your hands after you've done the creams, because that will falsely elevate those results.

So that's my one caveat. Make sure you're washing your hands thoroughly after you apply and then collect your samples as you would be instructed to otherwise. Oral, oral estrogen is tricky. Oral estrogen, because it's subject to first past metabolism and we're looking at a waste product.

So we're looking at excretion. When you take anything orally, it has to go through the gut and it conjugates in the gut, leaving only around 20% of that original substance available for circulation. Well, about 80% on average gets conjugated by the gut and just poops or urinates out of the body.

And so you're seeing all of that urinated conjugated unused hormone plus what you used. So this is where it gets tricky, because orals will have that dumping effect. You want to be off the oral product for at least 24 hours, about 24 hours, so a day.

Do your collection the next day to avoid the dumping impact of that first past metabolism. Now you're seeing the low end state of your hormones, but it's not going to be your high end. So you're catching a low trough instead of a high peak, but it does give you an idea like if you're bottoming out and it's below where we want your target to be, yeah, we probably need to increase your dose. Whereas if you're bottoming out and you're like high, you're probably on too high a dose, you're right.

We can still infer the correct information from those results. Sublinguals are going to have a similar effect because sublingual, when you put it in your gum line to let it to absorb and that buccal tissue or under the tongue even, you're still binding to saliva. And so that still gets swallowed and still some of that hormone gets conjugated out in the gut and looks really high in urine when it may not be actually high in your body.

So sublinguals, same idea, either two things. Don't take it for 24 hours and then you just get that low end trough, totally okay. Or it's a little trickier, but as you're taking your sample and letting that hormone dissolve, every time you feel you need to spit, spit out in a cup. And that way you're not swallowing the hormone and only the hormone at that point that's absorbed into the bloodstream will actually be caught in the urine. So that's a little more tedious and you have to like spit for an up to an hour after that buccal hormone has dissolved and it can take a while for that buccal hormone to dissolve.

So just in its bitter and it's so, but if you really want to be, if you're like, I want to know exactly what it is, I am methodical, I am diligent, get a little spit cup and just spit out the hormone, anything that as you're letting it absorb, anytime you have to spit, spit in that well cup. Yeah. I think that covers all of them. There is oral progesterone.

Hold on.

I think we have a question. I'm going to get the question. There's a progesterone. Please discuss topical or oral progesterone only in 70 plus women or progesterone plus DHEA. I don't know if that's a, there's no question in there. So just continue on with your, like it's just as please discuss

topical or oral progesterone in post menopausal women or progesterone with DHEA, but there's no specific question. So I don't really know how to field that.

So with progesterone, progesterone is an interesting hormone because topically it does not behave the same way as our testosterone and estrogens do. They don't circulate in the same way, just gets relieved.

It's equestried by tissue, which means that in urine, it tends to undervalue what you're actually getting into your tissues. And so it's not a great way to know therapeutic range in saliva it over, it amplifies what you're seeing or what you're using.

And so there's like in serum and urine it undervalues and saliva it overvalues. And so there's really no good way with progesterone. What we know about it is that a, it is used specifically to protect the endometrium. So if you have a condition where you need to protect the endometrial tissue and in a post menopausal woman on estrogen with a uterus, she needs to protect her endometrium. What they've shown is that they've done, studies are not stellar in this realm, I will start there. But what they've done is they've done studies where they'll look at the endometrial striping, they'll do tissue biopsies, and they'll look at the progesterone being taken and that mechanism of action, or that route of administration rather, and they'll see, okay, which one conferred the best protection.

And then what are we seeing in the ranges? How can we measure that protection? Well, what it came down to was, well, we know 100 milligrams of oral progesterone daily or really 200 milligrams of oral progesterone cycled for 12 days a month protects the endometrium. The levels that excrete in urine or in serum are not a good gauge because they're all over the board and depending on their metabolism. So there's no way to actually test your progesterone levels outside of getting a baseline endometrial ultrasound and monitoring it and taking the dose that's been shown in literature to be protective. So oral is protective at that 200 milligrams for 12 days or 100 milligrams nightly throughout the month, vaginal 100 milligrams nightly is protective, and then topicals have not shown to confer protection in the endometrium with any conclusive data.

There was one study that said it might and it was not able to get reproduced. So topicals, that's a gray zone and if you want to play it safe and cover your medical license or your practitioner license, topical isn't going to protect the endometrium. So just keep that in mind and it's hard to gauge any of them therapeutically at any medium, be it serum or urine or saliva.

Just yeah, I always like to do a baseline ultrasound with that one. With DHEA, again, you just want to stop it for 24 hours ahead of time and that way you get your low end value and you know where you are at the low end of therapeutic range and then you know if you are high even at the low end, you know you probably need to bring your dose down and if you're low then you bring your dose up. But again, DHEA doesn't really have a target range because it's really variable by person to person. Some people feel really good at really high level, some people feel good with tiny little levels and it's really more about just symptomatic control and that's the same with progesterone.

So that's symptomatic control. If you don't have an endometrium or endometrial tissue to protect, you can do topical. Just know that it's more symptom management at that point versus protection.

And then of course with oral, you have the added benefit of getting the GABA metabolite response with the alpha pregnant and dialkleurins from oral and that does cross the blood brain barrier and does increase that GABA and agonist influence. So you're getting more GABA binding in the brain, which is why it has a side effect, right?

It's a side effect, but it has a side effect of being groggy, making you groggy that can be used to help us sleep. So yeah, if that all makes sense, did I?

I think you covered all the bases. I'm trying to read through to see if you've already answered some of the questions, but let's see. I did a Dutch test four months ago and then started hormone replacement therapy. I purchased another Dutch test from you guys and I wanted to ask if it would be possible to review both to see how hormones changed from the baseline. I had breast cancer five years ago and at high risk for reoccurrence. If you want, Mary Ann's the one who's going to be handling that for you.

When your new Dutch results come in and we run it through the program and we get your report and she makes the video, you can share, just send her your other test. We're not going to run it through. It doesn't make sense to run it all through, but what she could do is look at the new one and then look at the old one. Mary Ann's pretty trained in the Dutch tests and she can see where the changes have happened. Not that the four month one is really super as clinically relevant, but yes, just send it to her. We can have her look at it and give you a little feedback on it.

The big things that you want to watch for on that repeat test would really would just be your estrogen clearance. With history of breast cancer, you want to see what was your four hydroxy preference on the first one and how has that changed at all with the bio identical replacement. That's the big biggie.

Do you think in general is bio identical estrogen safe and if so what doses? I would say that would depend on the person quite a bit. Yeah, absolutely.

There's a lot of factors that go into determining if you're a good candidate for bio identical estrogen. I will say this, so there's a great book out there. It's called Why Astrogen Matters. It goes into evaluating what came out of the women's health initiative. The women's health initiative came out in the early 2000s and it was just this big study, huge study that was poorly conducted. Unfortunately, we are now seeing the original researchers actually left the team. They brought in piecemeal researchers to bring in data and cherry pick what they wanted to show. What it came down to was that they were saying from that study estrogen increases breast cancer risk, right? It was like the end conclusion and then all of a sudden there was this big decline in bio identical hormone prescribing of any sort. The original researchers actually came back and we reviewed and have published, and this is on up to date, this is out there, this is on PubMed. They published kind of a redaction to what they originally said and are now reporting that estrogen actually in the group that just took estrogen, their risk for breast cancer was actually lower than non-hormone taking subjects. Now again, if you're just taking estrogen and you have a uterus, you would need to take progesterone as well and what they found is the progestins that were inflammatory and were a culprit or a risk for that breast cancer. So synthetic progesterone, right? Progestin was actually the issue there. They were not factoring in that original study. They weren't factoring in time of menopause. We know that really if you want to go on bioidenticals the first five to 10 years of your postmenopausal transition is the key time to really protect those bones and get those because those are when your receptors are still expecting hormone, right?

And so that's kind of the best window. If you're starting bioidenticals and you haven't been on them ever in your postmenopausal years and now you're 10 plus years into menopause and you're like, you know, I

would like a little support. It can be done. It has to be done really safely and it has to be done with a lot of like just confirmation that you're still a good candidate. Like women who have been on birth control and who have had really bad migraines from that birth control, probably not a good candidate, right? For bringing in bioidenticals. There is some concern with migraine with aura and bringing in bioidenticals. There's just a lot of clotting risk is another one that you want to just really be screened for and reviewed with your doctor.

And so there's a lot of contradictions that your doctor would want to screen you and make sure. But in terms of the safety, turns out like the sphere factor around estrogen was actually a little bit, estrogen became vilified unnecessarily. So estrogen really does have a lot of great quality, a lot of great protection. I will say this even, the information coming out, like, but we know bioidenticals are so much safer than peremorine, which is horse urine conjugated estrogens that are given in conventional medicine, right? For a hormone replacement. And that's what they were testing in the women's health initiative. And that's actually what they went back and tested again. And we're like, even, even peremorine was actually not as dangerous as they said it was. So not that we want to use that, right? We don't want to use horse mayors.

They're a lot bigger. But yeah, bioidenticals has a lot of great benefits, but you always want to weigh the risks and you always want to talk to your doctor about whether you're a candidate.

Thank you. Thank you for doing this. How does autoimmunity affect menopause? If blood tests come out normal, I'm guessing the blood tests being related, referred to are related to the auto immunity, but could be, oh, no, probably hormones. If the blood tests come out normal, could the Dutch test tell you more information if you are having symptoms, but not the quote normal sounding symptoms? If in the Dutch test, for the morning, I guess that's one question. If you wake at seven, do you do first saliva at seven, then seven, 30, then eight, correct?

Yeah. That first, so to start there, or unless it's a question still going on. No. Or is that good? Okay. Yeah, to start with that one, when you're doing saliva, you get a rise in cortisol. You can capture that in saliva within five to 10 minutes of a cortisol rise.

So when you're getting your cortisol awakening response, we want to know what is your lowest baseline? What are you before you even open your eyes? So what I tell my patients to do is have that salivary sample at your bedside table ready to go. And when you wake up before you even get out of bed, and even if you can help, like just squint your eyes open, don't turn lights on, don't do anything, just go and grab that saliva sample. It's a little cotton swab sticking in your eye.

Kind of chew on it. Get this saliva in there, really saturate that swab for a minute, and then spit it back in the tube, seal it, now get up and start your day and count the clock. 30 minutes later, take your 30 minute sample and then another, an hour from waking or another 30 minutes from that sample, take it, your third. And don't do any coffee or any extraneous exercise between those if you can avoid it. And that will give you a really nice cortisol awakening response to show your stress signaling. But yeah, don't even really open your eyes.

Like, right there, ready to go. We were doing them in bed when we were taking them when Mira was sick. Blood tests come out normal. Yeah. So I guess I'm trying to translate the question a little bit is somebody that's in menopause with autoimmunity are having some symptoms, but like I guessing maybe hormone kind of sort of type symptoms, I don't know. And the blood test comes out normal. Yes, there's definitely more you could learn from a Dutch, but she could tell you more, what that would be, but more about the metabolites and how the hormones are being processed.

And yeah, remember, your hormones really are just like a flag. They're telling us what was produced in blood, your scene, like what is out there? What is mostly protein bound? So what is your production at that time of blood test? So normal can be really variable.

It can mean a lot of things. And ranges are so variable, right? Like we know for a postmenopausal woman in the blood, we want to get that estradiol, that E2 in a range of 40 to 60 pika grams per milliliter of serum. And that's, you know, ideally collected first morning when that hormone is on its rise. Because again, hormones are bouncy.

They move a lot throughout the day. And so, you know, depending on when you took your sample and what your level was, levels as low as 10 are considered normal for a postmenopausal woman, it's not that they're normal. You're not going to feel good at that level, but you could still be told by your doctor, oh, you're okay. So that's caveat number one. Caveat two, as Michael has already kind of referenced, when you're looking up, you're in your scene, the enzymes involved. So you're seeing what was the upstream promotion, what is that trend towards production of that hormone, and then how did it process out? So you're really getting to infer kind of what factors could be altering production of that hormone, and how is that hormone then behaving in your body and metabolizing outward? You can only see that in urine.

So you really do get a lot of great information. And there are some autoimmune tendencies, depending on the condition, that can be kind of teased out as well. Like in some conditions, there can be a push more towards beta preference with your androgens. And so you see this really high eduocolan alone, and that's a white blood cell stimulator. It's actually pyrogenic. It makes us like feel flushed and feverish.

And so like if you're pushing that path, you might be getting hot flashes, not because your estrogens are out of balance per se, but because you're getting this pyrogenic metabolite of androgens, you know, so there's definitely other aspects of metabolism and those metabolites that are still acting in the body that can that you can't see in serum that could tell you what's going on with your symptoms. Yeah.

Perfect. Thank you. If I collect on Monday, need to let it dry Tuesday and ship Wednesday, correct?

Yes, you yeah, dry it for 24 hours.

Perfect. I have a question from Steven. I believe 77 year old male, I've been taking DHEA parentheses 50 milligrams yikes for many months. I have totally stopped as of a couple weeks ago. Will this mess up the results of my Dutch test? Thank you. I was I'm not taking it for any issue. I was just advised to take it for aging.

Yeah, DHEA totally is our anti-aging hormone out there right now. There's a lot of anti-agers, right? And we think anti-aging, it's like, well, basically it's reducing inflammation and helping with our like hormonal response. So DHEA, you know, for men, I'll go back because I know when we were talking about DHEA and the original educational videos, I had referenced that like for women, and I don't think I gave the asterisks of age, but for women in post-menopausal years, DHEA output from the adrenals is like about five milligrams, right?

It's pretty low. In cycling women and younger women, 18 milligrams is actually more where you fall, but you decline on average one to two percent each year after age 30, with a max decline of around 80 percent of where you were when you were at your peak in life. And that's true for men and women. So you get that decline. And for men, men, your adrenals do actually kick out a lot more DHEA.

You're like in the 20 or 30, even 40 milligram range on average. And athletic individuals, men and women will kick out a little bit more. So keep that in mind. And then with DHEA at 50, yeah, 50 is kind of a max higher end dose.

You don't want to be on that indefinitely. Men can get away with it a little longer than women. Women probably should never be up to that 50 milligram dose, unless like there are some fertility protocols with IVF that will use pretty high doses of DHEA to stimulate the ovarian like follicular response.

But that's a short course, right? That's for an IVF cycle. I think the literature really says DHEA at 50 milligrams should not be given for more than a three month window continuously without a break. And really like no more than like 100 milligrams for really short term. But there was an interesting study on cognitive health and depression with aging, associated with aging that had a six week course of 100 milligrams and then done, right? And so it's okay to have high doses and then stop. So I want to put that out there. It's totally okay to be on it for a while and then be like, okay, we're going to stop that one because that seems like I've been on it a while and that's a higher dose higher end range.

Absolutely. When you're looking at your Dutch, there's not like a negative feedback that will have kicked in. It's not like a steroid that knocks out your production, right? So at that dose, you haven't done any damage to your actual production cycle. You still will be producing your own DHEA. Now you can test at a baseline to see where you are, to see how much you really do need because you might need 20 or you might need 10. Yeah. So it's, yeah, I don't think there's any harm in having been on that dose. Be off of it for a couple of weeks before you test and then kind of get that baseline at that point. I'm sorry for rambling on that one.

It sounds like he's already been off for a couple of weeks. So I think he's good to go. Yeah, absolutely. Regarding first awakening with the Dutch, I have to usually get up to pee at the early morning. However, I usually get up around 9 a.m. Would I test at 4 a.m. when I get up to go to the bathroom or 9 a.m.? I would guess 9 a.m. Yeah.

So there's two things there. Number one, you can get an overnight sample request. They call it the insomnia sample for the Dutch plus. So adding in, just have them add in a second, or it would be a three,

four, five, six tube. And often though, you can just, it's free. Well, the tube itself is free of charge. If you run it, you can get as many tubes as you want. If you, the number of tubes you run is like an additional $25 a tube if it gets to the lab.

So I always put that caveat out there. So if you don't wake up, you won't be charged for that tube if you don't collect it. But if you do, collect that 4 a.m. and then collect the 9 a.m. And the lab will take the two together and take a weighted sample for your waking. And then you can see what was your cortisol at that 4 a.m. Now, that's if you're waking up and you're like, mind is racing and you're up and it takes you a while to fall back asleep.

If you're getting up just to urinate and your body falls right back to bed, you don't need that 4 a.m. You're going to go right back into your sleep cycle. You didn't likely start any type of rise yet. And then from you still have five hours, right? Between 4 a.m. and you're waking, natural waking. So go ahead and just collect at that 9 a.m. So two options that, yeah.

Okay. Does that make sense? Yes, it does. It does make sense. Does the Dutch pick up low hormone levels if it's due to the cell receptors not taking in hormones? What I would think that means is that you don't actually have low hormone levels. It's low hormone function or low hormone metabolism like the low. I think if the receptors are, yes, does the Dutch test pick up low hormone levels because cell receptors not taking in hormones would make the hormone levels go higher.

Usually, I would think. Because the body doesn't say, oh, we need more hormones because we're not getting the hormone to the place it needs to go. So maybe it needs more of it like insulin does.

Okay. So insulin is actually an external cell receptor, right? So it's on the surface. When you're looking at steroid hormones, this is a great question, right? Because I think it's really fascinating and it's like, ah-ha's like left and right when I was first starting with Dutch.

I'm like, oh my gosh, so great. Because when you're looking at steroid hormones, they're fat, right? They're made from cholesterol. Our cell phospholipid bilayers are also fat. Hormones just pass right into the cytoplasm. So your hormone receptors are actually in the cytoplasm with a little chaperone that uncouples when that hormone binds to that receptor site. And that receptor complex now enters into the nucleus and increases transcription to alter what that cell is now making.

So there's no locking system like with other external things. Insulin

is external. Yeah, because that's a peptide hormone. It requires, it's like a little key to open up. Yeah.

That's interesting. Hormones just kind of merge right through the wall.

Yeah. So they're primary hormones, which means they can pass right in. Yeah. And so the receptors are actually in the cytoplasm. That's where they're located. And when we're looking at urine, we're looking at the hormone that's passed into the cell. You're only seeing, so that's why it's truly bioavailable. So

testosterone is only the hormone that's passed into the cell. That's why serum can help kind of show you your story because serum's what's in the bloodstream.

It's what's in circulation. Urine's what's passing in. And then the metabolites are, okay, now that hormone bound to a receptor. That receptor complex went into the nucleus, increased transcription, and to say, hey, we need to start increasing egg development or anabolic response. It's triggering transcriptional activity directly to the DNA.

It's saying, okay, this is what we now need to program to alter that cell's behavior. And then once that's happened, now that hormone goes into the endoplasmic reticulum and is subject to CYP enzymes. And that's when it alters into its metabolite form.

And that's what now when it can start going back into circulation or excreting outward, remember those phase one metabolites are still potentially active and can still have transcriptional response at that cell level before they're taking to its next either methylation or sulfation response to fully make them inert and then excrete outward. So you're really seeing like the whole process within the cell. You're seeing what's in the cell. You're seeing the metabolites and now it's been used and now it's getting processed out. And then how is it getting processed out? Yeah. Yeah.

So yeah. So in urine, yeah, then this is, you know, I'll give you a little case study because this came up frequently with one provider in particular who was using a form of at like liposomal bucaltroche of estrogen and The estrogens were always so high in serum and yet so low in urine. And it wasn't until we really put the pieces together and realized, oh, it's just in circuit, like it's not getting out. It's not actually getting into the tissues, right?

So it's not binding to receptors. And all the women were still struggling with horrible symptoms of low estrogen, low libido, hot flashes, night sweats, like nothing was improving. And then if you only looked at her blood, like the blood was like through the roof and they're like, what is going on? And yet it just, it wasn't in the tissue. And so the urine showed low levels and low metabolites because there was just nothing there. It wasn't getting in.

Yeah, when you see any of the estrogen, yeah.

I added to the long list of things about hormones I learned in the last month from you. Awesome.

Thank you.

I have a short three part question regarding the Dutch test plus I received. Quercetin, if and when do I need to stop taking prior to testing? I'm not currently working with a practitioner.

Yeah, quercetin. Two things of quercetin, number one, it is a catapult. So it cancels down your methylation rate, but that's not why we would stop it. We want to know what is it actually doing in your body in that case. But because dopamine and norepine, so HVA and VMA are metabolites that we see in the Dutch test, they are augmented by quercetin in the gut. So it's not that you're making more

dopamine with quercetin, but you will excrete more HVA and make it look high. So you actually do want to stop it for about 72 hours if you want to get a clear view of what that's looking like.

Raw desiccated New Zealand bovine thyroid. If and when do I need to stop taking prior to testing? Dutch doesn't test thyroid hormone. Nope.

Plus we want to see what is your adrenal response while you're on your thyroid. Is it doing what it's supposed to be doing?

All right. Hashimoto's. How can I utilize the results of the Dutch plus to aid in the direction of working with my Hashimoto's recommendation for us? I guess the question would be like, how do the hormones that are measured in the Dutch relate to the status of Hashimoto's? The only, I would know like, and it's the plus. So the cortisol, like the car in the morning being strong would be really important to blunt the autoimmune response. That would be my low hanging fruit. I'm sure you have about nine other ways, but.

No, that is absolutely spot on. I would say that would be the first thing you would want to test is that car to see if you're getting the appropriate cortisol rise because that's so imperative to healing the autoimmune process. When you're looking at the free cortisol metabolized cortisol ratio, the metabolism of cortisol is primarily dependent on the level of free T3 in the cells of the liver. So if you don't have enough free T3 in your tissues, specifically liver, but it's a nice reflection of what's going on systemically, you're not metabolizing our cortisol and that can give us an indication of like, oh, you have really high free cortisol and yet your metabolites are just tanked. They're super low, like empty gas gauge, right?

Think of those gauges as gas tanks. So when you see that kind of like high free low metabolized, we know T3 likely isn't as active within the tissue, specifically not the liver. It could be a sluggish liver clearance as well, which is often related to sulfation and biliary health. But that one would be another one that you can closely monitor to say, oh, is my thyroid working well because here's my lab results. They're saying all of my ranges look beautiful. And yet here's this pattern saying maybe it's not, maybe thyroid actually isn't getting into the tissue.

Maybe there's a receptor response issue happening there where it's just not activating the right transcriptional clearance of cortisol. Yeah. So those would be the other ones. You know, when it comes to some of our other metabolites, there is some literature that suggests that autoimmune thyroid can increase five alpha reductase preference. So you could be monitoring that one as a gauge of activity as well.

I don't know that I hate my hat on that very often. There's so many other bigger drivers of that enzyme that I'm like, I don't know. Like insulin is the big driver on five alpha. In terms of autoimmune health, we do want to have a nice, depending on your cycle status, having a healthy estrogen progesterone balance is really important as well because that's altering our immune function. That's really playing a role in how we're kind of stimulating both clotting factors, but also histamines and how we're like triggering our white blood cell kind of responds in the body. So making sure that we're not estrogen dominant, that we

have enough progesterone to balance can be another really important piece of the Hashimoto's picture and any autoimmune picture. Thank you.

So for testosterone injections, I think I heard Dr. Liz say to one, collect halfway through for steady state or two, collect at the end to see how long you, how low you are going. Which method is best for the Dutch test we just got from you guys? I guess it would depend on what you want to know. Yeah.

So if you want to know if your therapy is working, then it's good to get the steady state. Yeah. So halfway between injections. Okay.

Um, started taking bonas, O-N-A-S, progesterone oil a month or two ago. I'm putting four to five drops on my gums at night since I'm eight or nine years post-menopause. I really need to get some testing done to find out what I need for the doses. It seems like my gut issues elevated the past month. Oh, since gut issues have elevated with taking the progesterone is the question. Could there be a connection or would that be related to something else?

That's really hard to say without knowing the million other factors that are involved. But have you seen that with anybody with, with that you've worked with, with progesterone supplementary? I have not. I've seen it. I don't want to say inert, but like mild.

And especially with a lower dose, that's going to be, if it's a progesterone oil bioidentical, you're looking at most likely 10 to 20 milligrams per drop. So maybe you're taking about like 40 to 80, I would guess. But look at your bottle and see what your dose is. Like how many milligrams of progesterone are you getting per drop? Would be number one to know. Like how much are you getting exposed to? The one caveat with progesterone, progesterone, depending on how sensitive you are to its hormonal response, it increases ligamentous laxity. Right. So what I usually see as a negative GI side effect of progesterone is increased gurd.

So the lower esophageal sphincter just becomes a little more lax and you get this like acid reflex or waterbrush kind of a like regerge burping, belching, bloating. Interesting. Yeah. Yeah. But that tends to be with oral. So, you know, if you're swallowing it more than you realize that could be problematic. Yeah.

Yeah. I would need to know like what is your dose range? And then in terms of the actual microbiome, I don't know that progesterone interacts a whole lot with the microbiome. Estrogen can, absolutely.

There's the whole strobelome, right? And that's influenced by hormone. But with progesterone, yeah, I think it's more. Well, okay.

So two things. It's that lower esophageal sphincter. So the bloating gas, belching, reflux might increase with use. And then the other one would be progesterone should be mast cell stabilizing, right?

It's actually a nice one to help improve histamine response. So, I don't know. I was going to say something there and I realized, yeah, no, that probably wouldn't be a cause. It would be more protective. Yeah. Okay. No.

All right. Hi, Michael and Dr. Bartman. I'm here as an integrative mental health practitioner and working with a client who just learned through lab work that she has minimal to no testosterone. She is planning to see an endocrinologist for treatment in April. Her question is what types of things might have impacted her change in testosterone? That was another question I had in an email, a woman with very low testosterone and what causes that. And what, if any natural treatment options are available, she's two years postpartum. Current medications include solofts, spirolectone.

I don't know that one. Vitamin D recently stopped fentamine. She came to me as a result of fatigue, depression, low motivation, inability to control stress, and not wanting to feel this way anymore. Thank you in advance. If there's anything you can share and thank you for helping break down barriers to great care.

Yeah, great question. I think so, spironolactone is a five-elf inhibitor and that's often used when women have hair loss because one of the most common culprits of hair loss in men and women is androgenic alopecia. And that's just like diffuse shedding of the hair. And so spironolactone, because it's a weak, it's weaker than like a finastera.

You would never want to use that in a woman. But like spironolactone is a weak inhibitor of five-elf and depending on her dose, I mean, prescriptions can be 50 milligrams of spiro up to 200 milligrams of spiro. I think 100 to 200 is your typical range for hair loss specifically.

And that's a pretty hefty dose. So there can be a feed. I do see this where there's like a feedback on if you're inhibiting five-elf and you're already low in testosterone and just like negates that cycle. It's like, okay, we don't want any DHT.

We don't want any anabolic response. So that would be number one question would be why is she on the spironolactone? What is her dose? And if it was for hair loss, probably not. And she wasn't, and if she wasn't tested for testosterone ahead of time, like ask her if she was tested for testosterone in DHT. I'm guessing she's on the spiro for hair loss. But like if she wasn't tested and she was just given it as a like here, use this for hair loss, you know, it helps, you know, that could be actually worsening her low androgen.

So ask about that one, figure out where that prescriber, why that prescriber initiated that prescription and what the rationale was. And then of course, if it is a blood pressure method, it's not a typical one. But if she is using it for blood pressure, of course, we wouldn't want to alter it unnecessarily, right? Like, but if it's for the hair loss piece, then you look into other factors for the hair loss, you look at her iron, if she's postpartum, she's got low iron, most likely.

And that's going to really be a driver for that hair loss. So check in on her ferritin levels, do a full iron saturation study, look at her transferrin, transferrin saturation, you can do transferrin receptors as well to really gauge like what is the up regulation or uptick and need for iron in that bone marrow. And then looking after thyroid would be the other one because thyroid tanks take a huge hit with pregnancy as well.

So those would be the two on the hair loss side. Now for testosterone, women make the bulk of their testosterone and adipose tissue, and it's in response to that anabolic signaling from our skeletal muscle, right? And so like if we think about our primary reproductive tissue is the ovary, right? And that's primary, we do make testosterone there, but most of it is just aromatizing right into estrogen. So a lot of our circulating testosterone does not come from the ovary, it's being a fuel source of an intermediate, right, just right into estrogen. We do get DHEA from our adrenals, DHEA does go into andrastane dyone, which is an intermediate to testosterone in our fat tissue. We do make a little testosterone in the adrenals direct as well, but it's really the adipose, it's making the bulk of it. So when we think about that, women make much, much less testosterone than men. You want to look at total testosterone, don't even look at free or bioavailable in serum, it's not accurate at all for women, there's just too little to capture.

What you want to get is sex hormone binding globulin and you want to get albumin. So you want to look at testosterone and then you want to see is it really a production issue or is she just binding it all up? Is her SHBG through the roof, which can happen with pregnancy because SHBG goes up when estrogens are high. And if her estrogens have started to recover but its HPG hasn't come back down, she could just be binding up all of her testosterone, right? So look at the SHBG, if it's above 90, that's high SHBG, that's high binding protein.

So now we want to really make sure that we're getting her access to testosterone by lowering SHBG and we can do that through a few things that aren't like 100% verified, but there's some great literature that's like, these could work, right? Boron is one of them. Boron is a mineral that definitely will be depleted during pregnancy. It's a great meta-analysis review on boron called Nothing Boring About Boron.

Everyone should read it, it's really great. But one of the things that it does is it does help lower the binding of testosterone to SHBG. And the dose is about 10 milligrams for six weeks. And then you want to drop back down to RDA, which actually is a little too high, like a little higher end of the RDA at the two to three milligrams ongoing for support.

I think RDA is one to two on the boron. And then Avina Sativa, so Wild Oat has some preliminary information on reducing SHBG. I think it's really because it mitigates stress in a lot of ways and is so mineral rich. But that can be a nice like herbal blend that you can give someone. Tonkhead Ali is a more male thought of male herb, but can be used in lower doses in women as well to help lower that SHBG and uncouple that testosterone and enhance testosterone activity. Because testosterone is systemic, it's not gonadal. You really can get a lot of great for women. So we're not going to be ovary to increase synthesis.

We're going to the fat tissue. There's a lot of great studies on herbs like maca, even careful, but lower dose on tribulus on the Tonkhead Ali can help with synthesis. So that's pretty cool. So you really can alter testosterone nicely in women with natural therapies and good minerals and checking in on the binding proteins and taking out the medication if needed. That's inhibiting her feedback to actually making the intracellular anabolic DHT that we don't want too much of, but we do want a little. Testosterone helps with dopamine and acetylcholine activity. So most definitely can aid in those like just

fatigue and depression and low energy and poor stress response. So we do want to boost that. DHEA would be the other one that can support. So checking in on her DHEA as in serum or looking at DHEA and on a Dutch, you know, can be really helpful to know, do we need to add that as a precursor? Because that can support testosterone for women really nicely.

Other factors for why it would drop inactive, be like sedentary, can cause testosterone to drop more because you're not getting that feedback response to say, oh, we need to generate this. And it's a energetically high demand to make it. So it's like, well, if we don't need to make much of it, then we're not going to. So making sure that she's stimulating her skeletal muscle. This could just be through, you know, gentle weight resistance training or resistance fans or carrying the baby and doing, you know, there's like the baby sizes, you know, they have within bits, just to be like little like bonding, but like moving and getting into like a whole new thing.

I've got baby derived tendonitis in my elbows.

Oh, no. I know. I know. That's right. You're doing like, you can definitely spend time with baby and get your skeletal muscle response. Don't overdo it and they get heavy fat. So be careful. Yeah.

He just passed eight kilos, which is about 18 point something pounds. I think right around 18 pounds. So, yeah, it's much more significant weight than when he was six pounds. Yeah. Absolutely. Okay. Did you have anything else to add? That was a lot of response for that person. That was really helpful.

The other things to think about with low testosterone, especially with other low hormones globally would be mitochondria. Because remember, all of our sex hormones start as cholesterol and then we're going to end up in the mitochondria of our endocrine tissues and are converted into pregnant alone and then into whatever additional hormone they are told to become based on enzymatic response within those tissues and transcriptional activity. So whenever I see low levels throughout, I always think, especially if it's like adrenals and testosterone, it's like, okay, so this is more systemic, right? The ovaries, they might still be working well and estrogen and progesterone look great.

But if it's more systemic, it's more adipose and adrenal that's not keeping up with demand, that can be mitochondrial and making sure that they're getting adequate, healthy fat in the diet, that they're getting good protein and that they're supporting their mitochondrial response. And that can be through any number of great minerals. Your life in A is my favorite right now, but NMN. Be careful with that one. You don't want to take it all the time. But just kind of like pulsing in like carnitine, ALA, vitamin C, good B vitamins, all the great things are trace minerals, selenia. And last story short, there's a lot women can do to boost their testosterone naturally. So there's hope there too. Plus, taking a short term can help too if it's really needed just to get those levels up to a good range, especially cause part of it.

I hope that was really helpful and we'll have a recording for whoever asked that question. I already hit the button to make the question go away, but you can rewatch it. Only have 10 minutes. There's questions are popping in faster than we're answering them.

So sometimes I do this to cure on also. This is going to become a little bit more rapid fire on the questions that are remaining. Just keep in mind that we have 10 minutes and some of them are really fast answers, I think, but we're going to have to rapid fire them a little bit. The question is, how do you feel about prescribing progesterone without estrogen for its benefits other than protecting endometrium in older women?

Absolutely. Okay. Yeah, it's estrogen that needs progesterone. Progesterone does not need estrogen. So you can totally take progesterone on its own, dose dependent. Just kind of, you don't have to have that high dose, right? You don't have to do the 100 to 200 milligrams.

You could do 25 or 50. It's whatever is supporting you and getting the benefit of the other roles that progesterone plays that are often neurocognitive. Okay. Yeah, totally okay to do progesterone solo. Perfect.

Yeah, I thought so, but you'd give it more thorough answer than I would, so I didn't jump in. Coming off birth control, do you need to wait to run a Dutch? How long? And then the other question is nursing mom okay to test during that time or better to wait?

So coming off birth control, you want to have at least the return ideally of one, or at least of one ideally of three menstrual cycles on your own before you test the Dutch. If you're not getting the return of a menstrual cycle within three months, test the Dutch and see what's happening and why.

But ideally if you're at that, as soon as you come off birth control, it takes a little while to jump start that HPO response and we want to know what you are making on your own. So try to have at least three menstrual cycles before you test. Breastfeeding, you can test if you're symptomatic, otherwise wait. Testing while breastfeeding, you're likely going to have low progesterone, but not always. And you may have lower other production of estrogen as well, but not always, right? And so if you're wanting it just for your own health and education and information, wait until you're done breastfeeding. If you're wanting it because you are symptomatic while you're breastfeeding, test your hormones and see where they are and why you might be symptomatic. Yeah.

Okay. How much can, a lot, how much can oral or topical DHEA raise estrogen and testosterone in, oh, raise estrogen, testosterone in women or men? I would guess that would depend on the person quite a bit and their conversion. Yeah.

Conversion, metabolic health, the more adipose tissue you have, the more aromatization you're going to have and men that's really impactful to DHEA in particular, women tend to get better testosterone gains with DHEA than men do because men tend to aromatize a lot of it in estrogen. So just be careful there. Make sure metabolically they're working nicely and supporting aromatase if needed.

If someone is on a fentanyl patch and cannot get off it, will there be a benefit of doing a Dutch test? I don't know how those would be related.

So with fentanyl, the big one is that it's going to impact your cortisol production. So it's basically telling your brain that it's okay not to feel pain. It gives you a blunted response to stress. And so then your HPA axis shuts down and that can trickle into HPO as well. So you can see a decline in testosterone in men more so on a fentanyl patch than women, but definitely that decline stresses out the mitochondria. I think it's still beneficial to see where your hormones are on the patch.

If it's something you can't come off of, then you may need replacement of some of these hormones if you're really in the toilet on your hormones because of the interaction of that patch and your HPO HPA axis. So keep that in mind. But do know, yeah, it's kind of just suppresses HPA in particular. In cortisol, I mean, I'll agree.

Okay. But I should say I'm preface that it's not that it's interfering with the results. The results are real to you. It's just it's blunt in your signals. And that's why you look cool.

Is it just going off at the last meeting? So yes, I'll put that actually good idea. I should be putting that in the chat. We are going to extend that offer just this weekend with this Q &A and the recording going out.

So I will put it in the chat right now. The link to the testing that Dutch test orders are right there. And that comes at the end of access report and to customized recommendations and the professional interpretation video. And it's like Dr. Liz is reviewing your Dutch.

So I just put the link there and then both Dutch options are there. So that is in the chat. Terry asked, and she's the one who asked about the testosterone testing with the shots, whether in between or at the end. And you said in between and she says, what if you want to get off the testosterone? And I think that's actually quite a complex answer. But there's a lot to do to increase natural testosterone. And I don't know the body's whiplash reaction when you stop taking it. So do you have, is that too long of an answer? Or do you have a quick response to that?

Well, the short answer is luckily testosterone is a longer lived hormone in the body. So it's easier to titrate off, right? Because it stays around a little longer while you're lowering your dose. I think testing that right before your next injection can be really helpful and identifying what your lowest level is and then just basing your rounds off of that. Segments of decreasing by that amount can help. But yeah, it's variable and sometimes I'll have people pulse it or just extend the rate. There's a lot of ways that it can be done by working with your provider on that one.

It's going to be really important. But yeah, it's not one that causes a whiplash and symptoms. Astrogens can when you come off of them because it's like, whoa, I'll wash this back. But androgens, not as significant because they stay around a little longer and they help you feel that gradual decline a little more naturally. So yeah.

Just out of curiosity, why no flossing for the entire day of the test?

So when you're looking at saliva, saliva is really sensitive to heme in the mouth, right? So and that can falsely elevate all sorts of things. This is true for any salivary test you do. So we just want to make sure

that you're not and if you bleed when you brush your teeth, you probably want to avoid brushing your teeth before the samples as well. Because yeah, that blood in the saliva can alter results.

Okay. Will boron supplements such as fructoborate interfere with the Dutch test? No.

No interference. It just shows you how you're responding while you're on it, which is always important.

Men, DHEA for men for general health and aging issues. Do you need to test to determine a dosage or is there a good general dosage? I feel like this was answered in an earlier question regarding DHEA. When Steven asked about DHEA, he was taking 50 milligrams. You said there was like a...

Yes, something that can get away with like 20. You don't need to take it, but... Yeah, exactly. Yeah. Again, we expect a natural decline. We want to keep you on the higher end of your expected, right? Because we want to keep you robust in its production. But yeah, men can get away with 10 milligrams. They could get away with 30 milligrams. You really... It's variable. And so testing is really important to know how much you want to take, I think.

Okay. And if on birth control pills, can you still do the Dutch test? Confused due to what you said to the last question about having three cycles off the birth control pills.

When you're on birth control, it's synthetic hormone. We are not looking at synthetic. We're looking at bioidentical. When you're on birth control, you are flooding your body with a lot of synthetic estrogen mimickers. And that's telling the brain essentially that you're pregnant. And so that says, do not make any more follicles, right? Because we're already pregnant. We don't need to be in a reproductive mode right now. And so you're basically putting your ovaries into a little hibernation mode. And so when you're testing a Dutch test, we're only looking at what your ovaries are making or what you've made endogenously. It's very minimal when you're on birth control. And then we don't... Like if you're skewed in your metabolites of what little estrogen you are making, we don't want to give you anything that would alter metabolism because then you could actually alter the metabolism of your birth control and render it less effective and actually make it possible for you to get pregnant, right?

So we don't want that. So a lot of detox products shouldn't be taken while you're on the birth control, except with the exception of a gut conjugator, like a good gut and a good probiotic are really important. Now, DHEA and testosterone are not directly impacted by the birth control, but they can be impacted because of the effect that birth control has on the liver.

SHBG goes up. That can lower your bioavailable testosterone and it can give feedback to lower DHEA in some cases as well. Not that it's impacting those... Like that would be your actual production, right? And so sometimes seeing that, if you're symptomatic, it's like... If you're estrogen-dominant symptomatic, it's the birth control, right? Like there's nothing we're going to really do to alter that aside from getting like a good gut conjugator and supporting your bowel activity. But if your testosterone's are really low because your SHBG is so high, we want to see that. Like that could be information that's worth seeing because then we want to help address that and balance that while you're on the birth control. Adrenals aren't impacted at all by birth control. So senior adrenal profiles still really beneficial. The oats are not

impacted. So seeing those metabolites can be really nice to capture. But just it's really the progesterone estrogen and the metabolites of estrogen that we wouldn't want to touch with birth control.

Okay. And then any insight on the following? All hormonal... Was this a good question? All hormonal and thyroid numbers are within normal range, quote, except TPO, which is mid 200. Primary doctor and endocrinologist not bothered, not concerned. Why would TPO be so high and doctors not concerned?

So doctors... This is a direct quote from a colleague of mine. I said, why are you not ordering some of these more advanced tests? And he's like, well, how would it alter what I do with what I have from these primary tests? Like I only base my decisions on TSH.

So why would I care what free T3 is? If TSH is normal, that's all I'm treating. And I'm like, but there's all these other issues with conversion and antibody response and tissue activity. And but the issue is they don't know what to do with that information.

So why bother testing it? They know what to do with thyroid when it's out of balance. They don't know what to do with antibodies if they're not impacting the thyroid yet. So that's likely where they're saying, that's not an issue because the TSH is still working nicely, which means the antibodies aren't attacking the thyroid enough at this point to make the thyroid a problem to need to replace thyroid. Functionally, we know TPO is attacking the thyroid and it's a tactic receptor activity and decreasing your binding and response to that thyroid. So we know it's a problem.

You shouldn't have elevated TPO. We know it's an early phasic responder that you're still compensating nicely. So this is good to intervene at this point. It means really got to work on the factors that are increasing those auto antibodies. And that's supporting immune function.

Gut health is really key in this one. Cortisol, looking at your HPA axis, like your adrenals, can be really impactful because they thyroid and adrenals play on one another. Yeah, the TPO. So there's nothing, so there's no medication that would lower TPO, which is why they're not bothered by it. There's a medication to replace thyroid. Once TPO damages the thyroid enough, they can replace the thyroid, but you're not there yet. But you are early phases. So this is where an autoimmune protocol would be really helpful for you. But yeah, that's my...

Final, final, no, that works. Final question. How does a Dutch test, how can the Dutch test results relate to sleep apnea? Sleep apnea, I mean, there's a lot of physiological ... what's the right word? Mechanical, biomechanical situations with the mouth and the jaw and the breathing and breathing through the mouth versus the nose. And I'm really well versed on that type of stuff. I don't know anything about hormones in sleep apnea. So what do you got?

You know, the big thing that's going to be impacted is your car. Because the sleep apnea, you're not breathing at night. That's a stress response. You tend to either see really, really high exaggerated car or flat lined car, depending on the severity of the apnea. So it's... All right. We're good.

Everybody, the link is in the chat if you want to check out the Dutch tests with the EndoAxis reports, which Dr. Liz designed and her... Many years of interpreting these tests went into the software for those reports. So it's like we're getting customized reports created for the hormone testing by Dr. Liz herself. Those are there at the link. Drop a little love for Dr. Liz in the chat for taking this time to answer our questions.

Please, so that she can see how appreciated she is. And yeah, this was fantastic. I mean, the really, really great questions from everybody. I think the answers are really useful. I think that our audience asks very good questions and very detailed questions. So I knew you would be up to the challenge. I don't know if I warned you about that ahead of time, but they ask pretty solid questions. That's great. That's good.

I was like, I'm talking to a practitioner right now. That's great.

There's a few in there. There's a few practitioners, but a lot of our audience... We've gotten feedback from Kiran over the years a bunch of times that he gets asked better questions on RHT webinars than he does at medical conferences that he speaks at and that he is not sure... He's not sure if that's a compliment to our audience or if it is a knock towards some of the people at his medical conferences, but he says that pretty often that he gets really, really good questions in our things. And we have had guests kind of get caught off guard a little bit expecting kind of softball. What is estrogen kind of questions? And our audience doesn't play like that.

So thank you so much. You got all these excited people in the chat. Thank you so much. Everyone's excited to get their results, to get their test results. Those are shipped out. You guys should have either received them or will be receiving them.

Yeah. Thank you so much, everybody again for all the questions and for being here and to Dr. Liz and everybody have a great weekend.

Thank you so much, Michael. This is close. You're talking with everyone. Thank you guys for your great questions.