Hormones And The Cyclical Nature Of Female Energy Production Transcript

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Introduction and Speaker Background

Welcome back to the conversation. Today I have a Dr. Stephanie Estima. Welcome, Stephanie. I am delighted to be here. Thank you for having me. We are delighted to have you here.

Well, we are going to have one heck of a talk about hormones and women's health and cortisol and exercise and all the things or those of our audience who don't know you.

You are a women's health educator, an expert in metabolism, and a female body expert in female body composition. You're a bestselling author and a podcast host, and you are the host of Better with Dr.

Stephanie. It's top rated podcast with over 4 million downloads. You've been featured on TV Interviews, magazine covers, hundreds of podcasts, had millions of people read your articles on Medium.com.

And underneath all of this is a brilliant woman who understands hormones and how to help women with it. So shall we dove into this? We shall. I can't wait. I'm so excited.

Okay, good. So the first thing I think we need to unpack as we get into this conversation is that, you know, hormones shift and change over the menstrual cycle.

The way that your hormones are at point A is different from point B, point C and even as we age. So it's not just kind of a one size fits all situation.

So can you talk a little bit about that if you are, you know, pre-menopausal, perimenopausal, menopausal, there's things we need to know. And also throughout your monthly cycle, if you're having periods, there's things we need to know.

So I'll let you dove into that. Wonderful. All right. So obviously, as you were alluding to, our sex hormones are our capacity for reproduction and our capacity for menstruation is one of the easily, most easily distinguishable blessings of being a woman.

Right. Every single month from about call it 11, 12, 13 years of age up until somewhere 51, 52, 53, roughly. We are going to be creating a new organ every single month.

Menstrual Cycle Basics and Hormone Shifts

So we're building out an endometrial lining in anticipation of a fertilized egg. You know, whether or not that's what you desire, your biology doesn't care.

That's kind of what your body is designed to do. And so when we're thinking about some of the unique distinguishing features of women, we've often and I'll say this is although it's changing, I still think that there are some major gaps in literature and research.

We're often just looked at as sort of smaller archetypes of men, right? With this like pesky thing called a period, right? Yeah. Yeah. And so I want us to pay attention to the menstrual cycle in particular, because for women it's a vital sign.

So when we think about temperature regulation, when we think about heart rate, respiratory rate, oxygen saturation, blood pressure, menstruation is also as important as those other vital signs as a key insight into our hormonal balance.

So how your symptoms play out through the month, how heavy your bleed is, the quality of your bleed. We have like tons of clots. How long you're bleeding for the color of your bleed.

You know, all of these different factors that we're thinking about every single month that you menstruate and you go through a full, complete cycle in your menstrual cycle, you're basically getting a report card in your bleed week in terms of how well you did last month in managing your stress hormones, in managing or in the in the relative balance of sex hormones, which we'll talk about today.

And then your overall your overall vitality. So your question was, how do the hormones I think one of your first question was how does how do the hormones change over the cycle?

And we can think about the cycle. I always like to distinguish when we're talking about men and women. Men, I always call men. Men are like the sun and women are like the moon, right?

So men will go through their sex hormones over the course of a day. Kind of like the sun, right? So the sun rises in the morning and then sets the, you know, that evening and then the same thing happens day in, day out, right?

Men are very much like that in terms of how they cycle through their sex hormones. Women will, you know, if men are like the sun, women are like the moon, where we will cycle through our entire we'll say a crescendo, if you will, of sex hormones over the course of a month.

Right. So the entire symphony of hormones, we process over about 29 and a half days, which is about the lunar cycle right after the moon cycle, we know is about 29, 20 to 29 and a half days.

And so the cycle itself can be broken down into approximately four weeks now, all cycles are not the same, right? So some I'm like a 29 day girl. You know, there's going to be women here that are 26.

There's going to be some women that are 30 to, you know, normal range for your cycle is somewhere between 25 and 34 days. So there's some variance. And obviously every month we're alternating ovaries.

So the health of the right ovary and the health of the left ovary is going to dictate how long that cycle is going to be. So somewhere between 25, 26 to 34 days is considered normal.

But just for the purposes of our discussion here, it's generally four weeks in length, right? So we can generally chop up the cycle into four distinct categories.

So the first two weeks we call the follicular phase, or if you're in the UK or in Europe, you'll call it the proliferative phase. So the follicular phase all about the follicle, right?

So it's all about developing a follicle. The second half of the phase of the cycle is going to be called the secretary phase or the luteal phase of the cycle.

So just depending on your nomenclature, we're talking about the exact same thing in the first two weeks of the cycle. We have your period, right? So this is bleed week.

This is Shark Week, right? So we all know when we're on our periods, right? Because we're wearing caps or we're wearing tampons or pads or what have you.

And when we think about the hormonal composition that week, most hormones are low. So estrogen, when we think about sex hormones, specifically, estrogens are low testosterone, low progesterone is not around really.

Luteinizing hormones quite low. The only sex hormone. And we don't have to go into this one too much that is high is something called follicular stimulating hormone.

And if you just think about the name of that, it's designed to stimulate the growth and development of the follicle

because we are in the follicular phase normal bleed week.

Again, there's there's a range of what's considered normal. So 2 to 7 days. So bleeding under two days, maybe there's not enough hormones to have produced the thickness and the robustness and and quantity of the endometrial lining over seven days.

And we might be talking about excess, we might be talking about things like estrogen, excess fibroids, maybe endometriosis, adenomyosis, which are maybe beyond the scope of this conversation.

But just for the listener to understand normal bleed can be anywhere from 2 to 7 days when we move into the second week. This is the pre ovulatory week.

So this is the week prior to ovulation which I will just say is the main point of the cycle. So the period gets all the attention, right? We're like, are you clotting? What's the color?

How long are you bleeding? You know, how often are you changing your pad? But you know, I always think about like the period is sort of like the popular girl in high school.

She gets all the attention. Ovulation is actually the point of your cycle if you. Don't love it. Yeah, I love this distinction. Yeah, we get the noisiest thing, gets attention and that's the noisy phase.

It's like the loudest person gets the attention and totally it's like the it's like the annoying miles loud. Yeah. Obviously she's like the nerdy girl with the glasses studying in the library.

She's really, really important. She's really like, she's kind of the point, right? But we ignore her because she's not loud and she's there's no obvious, you know, physical signs that that's happening.

Maybe some people there are some people that do experience something called middle SMERSH, which if you're German, you might be able to figure out what that means.

Middle meaning middle and submerge, meaning pain. So sometimes women will feel some pain, some cramping with the release of an egg. But other than that, there's no real salient symptoms.

Now, we might someone might argue, but what about cervical fluid? Yes, that's that would be another salient clinic. If you are familiar with your cervical fluid.

Certainly the cervical fluid, let's say, in your underwear might be very low, shiny egg, weighty, creamy, sticky. That's also another clinical like a salient physical sign that you are either at ovulation or about to ovulate.

And so we so in that week in that week to right. So we're leading up to the main point, which is like ovulation. We have a peak of some really important anabolic hormones, so namely testosterone and estrogen.

Ovulation, Libido, and the Luteal Phase

And more specifically with estrogen, we call that estradiol. So testosterone obviously famous for libido, right. It's you may find in that week prior to ovulation that your husband or your partner or your whatever kind of relationship you're in, what if you are in a relationship that your partner just looks a little bit more delicious and a little bit more scrumptious, you may find?

And when we think about sort of reproductive wise, you know, with that bump in testosterone, orgasms tend to be stronger, the clitoris seems to be more sensitive.

And our desire and our receptivity to sex is much, much higher. And that's that's not all by design. It's all by design. I took the words out of my mouth, girl.

Exactly. It's all by design. Because Mother Nature, she's a wily minx, right? She knows that there's an egg that is about to be released. So if you have sex in the 5 to 7 days, let's say prior to ovulation and there's sperm that is deposited, let's say that sperm can live up to seven days in the womb.

So they like package picnic, they have food, they have backpacks, they have all the things. Right. They have all the you know, they have all the equipment that they need to find their way up for the eventual you know, if they're finding the egg and the egg sort of picks, we now we used to think that it was like the sperm kind of fight for each other and then the strongest one wins.

It's actually the egg chooses the one that she wants. Oh, amazing. I would also add that the man knows it. Like we're secreting pheromones and we're doing things that they're they're they're picking up the signal we're putting out because after being married to the same man for 23 years, he knew he I mean, I'm I'm perimenopausal now.

So that's not happening anymore. But he knew when I was obviously waiting for sure they were cyclical. And so I think actually what your you know, your husband or your partner knowing about when you're obviously dating, I think that that's such powerful information as well for him to be like, oh, okay, like maybe we'll go out on a date or, you know, that kind of thing.

I love that when you're in the long term or short term doesn't matter relationship that your partner can actually get in on gas, maybe get in on the action is what I was going to say.

But, you know, kind of understand your cycles and how your mood and your affect and your relationship, let's say, to sex changes. Now, you know, our relationship to sex is very complicated.

It's not just as simple as testosterone goes up. And we want to like there's there's history. There's, you know, for women, a lot of times there's trauma and there's there's sort of all of these other competing factors that can and our our cultural will say opinion or views on sex and a woman enjoying sex.

That's a whole maybe other conversation that we can have when we're done this, when we're done and stuff. But I feel like in for the purpose of understanding our hormonal milieu and the hormone like that ever changing landscape of our hormones.

If you are feeling a little bit more sprightly, you know, you're feeling a little bit more like, Hey, baby, what's up? Like, you look so cute today. Know that that's under the influence of testosterone.

The other anabolic hormone that I mentioned was estrogen. So estrogen is working again to help like finalize and develop that follicle prior to ovulation.

Estrogen, as we know for women, is involved in development of our secondary sex characteristics. Right. So breast and hip development. So in this week, you're going to see your lips plump up.

Your skin is going to be I like eyes. The whites of the eyes are going to be brighter. You know, you're going to be a little fuller maybe in the breasts, a little fuller in the hips.

It's sort of like a natural bell, you know, like a natural sort. Of natural, sexy appeal. Totally. Totally. And then we and then so that's sort of the characteristics of that week.

We also see another hormone that comes in. It's called luteinizing hormone comes in after that peak of estradiol that is going to help with the release of the egg from the follicle.

And then we ovulate main point of the cycle and then we move into kind of the second half of the cycle where the entire hormonal landscape changes. Now we see the introduction.

If we've ovulated, we will see progesterone start to increase, which is a hormone. If you think about the word pro gestation, pro pregnancy, progesterone is the pro pregnancy hormone.

So it is going to it is going to be helping. Now, the egg that was released, we are now going to start to see that follicle is going to start to release, is going to start to release progesterone.

And we're going to start to see things like we're going to get warmer because progesterone is very warming. You'll start to see a core body temperature increase over the second half of the cycle.

We'll start to see things like bowel movements slowing down. So digestion not generally is slowing down. We may also see more sleep disturbances because you're because of your core body temperature changes.

So when we are warmer, it's much more difficult for us to sleep, let's say, through the night. And this is the part of the cycle, the second half, these last two weeks of the cycle, where there is the most opportunity for us to feel imbalances in our hormones.

So if you are someone, let's say, who classically feels those symptoms of premenstrual like those premenstrual syndrome or symptoms, the tender breast, the water retention, the bowel, the back, like the slowed bowels, as I was mentioning, the mood and the affect changes like you may feel a little bit more emotional, a little bit more weepy.

These are also very normal changes. It is a sign of inflammation, right? So we shouldn't necessarily feel like we can't get our rings on our fingers or that our breasts are tender.

Those are those are signs of abnormal, we'll say hormonal composition. So the tender breast, the water retention, usually we're talking about too much estrogen, right?

So the golden rule of estrogen is use it and then lose it. We don't want it hanging around because estrogen, at least for breast tissue, we know that it can be proliferative to cells in the breast, meaning that there we are promoting cell growth, which we never want in the breast all the time.

And then in the bones, for example, we know that the effect that it has is to shut down bony growth. So as we age, of course, this becomes a very big concern for us as well, because we want to keep our bones nice and thick and dense as we're aging.

So if we are constantly in this estrogen dominant like state where we're experiencing those symptoms of perimenopause, sorry, of PMS, as I was mentioning, and that happens in perimenopause because progesterone tends to lower as we age, we certainly can start to feel some of these effects of this estrogen dominance in the luteal phase of the cycle.

Okay. Dr. Stephanie, I want to so you just unpack the book full menstrual phase and what we feel as we go through it. The other things I want to make sure we touch on, so we have a lot of perimenopausal menopausal women viewing this right now.

And so we want to make sure that we are loving up on what happens with the hormones at this phase in life. And then we want to connect this with mitochondria energy production because there is a huge connection between our menstrual cycles, our hormones, and even when we're no longer menstruating and what happens with mitochondria, energy production.

So in terms of the woman now whose periods have slowed down, she's perimenopausal. There's some shifts and changes here as well. And then the menopausal woman who's no longer menstruating.

So can you share the changes that are happening there as well? Sure. So first, let me say I am also in perimenopause. I'm 45 years old. So perimenopause, at least by my definition, starts in your mid-thirties, right where we start to see this slow or this lowering or this attenuation will say of progesterone secretion, it's kind of a stepwise reduction.

So year over year, we just get a little less, a little less, a little less. So in your thirties, you may not necessarily feel

any changes, but certainly in your forties, if you are not strategic and we're going to talk about some solutions today, you certainly can run that estrogen dominance.

So I have a particularly soft spot in my heart for perimenopausal women. One, because I'm going through it myself and I'm navigating some of the changes, let's say hormonally that are happening in my own body.

But also I feel that perimenopausal women are often forgotten about, right? It's like, Oh, this is just a function of aging. Oh, here's the birth control pill for your now your seemingly irregular cycle.

The birth control pill will fix it, which I don't know if you want to go down that rabbit hole, but we certainly can. Or maybe another. Time. But I think we can just say it's going to cause nutrient depletion, it's going to cause problems.

Yeah. Lipid derangement, all the things. Okay, so so I love perimenopausal women and generally what a perimenopausal woman needs to understand is there's actually several different phases to perimenopause.

So we have that first phase of perimenopause, which is where I think I am. I am about to sort of qualify for where the menstrual cycle starts to shorten a little bit.

So you're still quite regular. So for me, I'm like regularly a 29 kind of day girl. You know, last month it was 28 and I was like, Oh, okay, this is what it is, right?

So the menstrual cycle itself starts to shorten a little bit. The second phase of perimenopause, we start to see that the cycle starts to get irregular.

So you're not regular every month anymore.

Perimenopause Stages and Hormonal Changes

You're not obviously eating every month anymore, so you're skipping periods because in order to have a period, you need to ovulate. You don't just bleed every week or bleed every month.

You need to ovulate in order to build that endometrium lining up under the influence of progesterone like we just talked about. And then to shed the third phase is now where we are seeing cycles that are longer than 60, longer than 60 days.

Right. So now we're starting to see hot flashes, maybe the sleeplessness. Yeah, you're like. Oh, that's me. And then some of those other classic menopausal symptoms.

And then the fourth phase just very quickly is what I call the waiting room, right? So it's like you're just you're just waiting, right? Because in order to qualify for menopause, it's a retroactive diagnosis.

You need to have not had a period for a year. So in that waiting room, that fourth phase, you may not have had a period for four months. And you're like, okay, I have eight more months of this to go to see if I qualify.

So one of the things that I, in all phases of perimenopause just I wanted to kind of go over those phases just so a woman who might be in her forties doesn't misinterpret her experience as abnormal.

Perimenopause is a norm. It's not a disease. It's a normal state. We are not disease. There's nothing wrong with you. But there's a reason why you are not able to be fertile.

Like, do you really want a kid when you're 60? Do you still want to have a period when you're 70? Like the risk of getting pregnant when you're 50, 60, 70.

Like, think about like I was just asked, I was talking to a friend last night and he's like, Are you going to go? I have three boys. And he was like, Are you going to go for the girl?

I'm like, If I had a girl now I'm 45, so I'll be 46 by the time the baby's delivered. Like by the time that baby's 20, I'm going to be 66. Yeah. So, like, that's a big age differential, right?

So anyway, so like the whole point is like there's a reason why you're not fertile forever, okay? Because you don't want to be raising a child when you're 66.

So but one of the things that we have to understand in perimenopause is there's a couple of important changes that happen. One is that we naturally, as a function of age, become more insulin resistant.

So what that means is that we are the cells in our body, muscle cells, bone cells, all the cells just naturally don't listen to the same amount of insulin that they once did.

So what has to happen by necessity, in order to do the same thing, is that the beta cells of your pancreas now have to pump out more insulin right. It's kind of looking if we think about a diabetic, that's what happens, right?

So they're insulin resistant and they have to take insulin and usually more and more and more and more insulin over time because the body habituate, it's so understanding that we become more insulin resistant.

And the other thing I'll talk about and this will kind of link in the cortisol piece that you were mentioning earlier, is perimenopausal. Women are sort of at a unique stage in their life where we have environmental constraints.

I usually call them environmental constraints from above and below. So maybe when you're in your forties now, you have children that are maybe in their teenage years, in their twenties, depending on how early you had your children.

And there's a whole host of, you know, problems that like I really think the parenting starts when the kids are about 12 or 13 years old. Right. They're a little bit more lippy. You know, they know everything.

And then we've just all collectively gone through a pandemic. So maybe there's delays in academic you know, maybe they've been delayed, maybe there's mental health issues, maybe they haven't been as social.

So their peer groups are changed or socially delayed. I mean, I'm seeing this right now with my my daughter's 18 and I'm we just went through prom and, you know, we just did this.

And almost none of the kids had dates. They just went as a group like they are. They're they're socially delayed. Yeah, I'm seeing this for sure. That absolutely breaks my heart like I was.

I mean, my prom, I had a date. I was so petrified with my, you know, like for the date and for the whole night. But it was such a big moment, you know, to sort of be picked up by your by your guy and the rose and all the you know.

None of that none of that is happening. It's a big party bus where everybody jumps in together and they're not experiencing kind of like that brick wall to adulthood.

Right. Like prom is almost like a prequel to Act Two scene. What it's like to actually be in the 14 scene when it's when if our whole purpose is to re procreate and, you know, keep life going on this planet.

Prom is like one of those safe places to experience all the feels. And it's not happening like that anymore. Yeah, yeah. Well said. Oh, fascinating. I mean, that's a wormhole we can go down.

Oh, goodness gracious. Yeah. Yeah. So we have so we have the pandemic and we have our teens and our you know, our tweens. Even so, those are sort of the pressures from below and then the pressures from above.

When you're 40 or 50, you have aging parents or caregivers. Right, that are now requiring maybe more trips to the doctor, making sure that they're taking the medications that they've been prescribed or getting, you know, assisting them in ways that they you know, they previously were independent.

And now there's more of a dependance, let's say, on on that perimenopausal woman who is let's just be honest, women are usually the caregivers. They're the nurse.

They're the ones that, you know, you wake up in the middle of the night, you go to mom, right? You have a nightmare. You go to mom. And the same is true when you're a daughter and you are seeing your parents age, it's usually the woman who's taking them to those appointments, right?

It's usually the woman who is taking care, making sure that they're not mixing up medications and the dosage is right and all the things. So a perimenopausal woman has these like constraints from above and below, which is incredibly stressful.

Right. So not only do we see her own physiology changing with the insulin resistance that we were talking about, I didn't mention which I will quickly add in as well.

Her muscles as a menopausal woman. Your muscles also become more resistant to growth as well. So it's harder for a woman in her forties, fifties and sixties and beyond to put on muscle versus when you were in your twenties and thirties.

It's not impossible. You certainly can, but it takes more work. So now we have these sort of this recipe for body composition changes, right? She's running more insulin resistant.

Maybe if she's not working out or not doing resistance training, she's starting to lose muscle mass at about a rate of 1% per year. If she's not doing anything.

So 10% over her forties. Like if you think about a decade, you're not doing anything until you're about 50. You've lost 10% of your muscle mass or your lean body mass, I should say more accurately, which also includes organ weight and bones and things like that.

And then we have these stressors in her life where she's dealing with children that need extra support, parents that need extra support, and that's going to drive up her sympathetic her sympathetic nervous system, which is just to say she's way more stressed.

So she's going to her output of cortisol is going to be higher. Her output of adrenalin and noradrenaline is going to be higher. So she's constantly in this sort of fight or flight, that sort of you know, when we when we talk about the sympathetic, it's like fight or flight freeze, right?

It's like you're either running from the bear, fighting the bear, or you're the deer in headlights. We've all heard that sort of saying where that, you know, the deer sees the oncoming car and it's just like it's it's it's frozen, right?

And that's where we get stuck. And so that leads to things like weight loss resistance that leads to weight gain, especially through the belly. So if you're a woman that's listening in her forties, it's like I, I don't know what's going on, but I'm 45 and I just have all of this belly weight that I didn't ever have before and I can't get rid of it.

I think that when we sort of piece apart her life, we'll probably find that she's not weight training the movement that she's doing. And I know we'll get to this in a moment, but I just wanted to let up on my perimenopausal ladies.

But the movement that she's doing is probably cardio. Mm hmm. Which there's nothing wrong with cardio, but if you're not lifting weights more than you're, then you're doing your cardio.

We have a problem. And then we have these environmental or these sort of life stage of life stressors that are going to now drive up her cortisol output, which just naturally makes you more insulin resistant to naturally makes you you have a propensity to put on more adiposity so your fat mass like you're going to be, it's easier for your body to pack on fat mass because your body's like, we have to run away from a bear.

If the bear gets us, we have to be able to survive this. Right? So you're just going to be packing on the pounds, let's

say, as as a survival mechanism.

Okay. So now can you talk about the menopausal woman? So now she's completely done with her periods, what's happening with her hormones. So now we have just a lower I really want I think menopause needs a rebrand.

That's my that's my little shtick. I think that I feel like it's, you know, in Hollywood and sort of culturally, we look at a menopausal woman and say, oh, you know, not washed up is not the word, but sort of like done, you know, like finished.

Right. Like there's no she's not she's not she's a mother or maybe she's a grandmother. So no sexuality like no sex life for her. You know, all of these she has to dress a certain way.

She has to look a certain way. So I think that we need to really rebrand menopause as like the second spring in a woman's life where the first spring is like men are right starting into this into this journey of womanhood and then passing through this portal through menopause as a as a journey back to oneself.

Because we've probably spent the last 20, maybe 30, maybe even more years tending to other people. So it's now time to kind of get back to what's important for us to live a well-lived life.

So in terms of hormones and that's just my that's my own philosophy. So I hope that that lands with. You lands and as as someone who's passing through the portal right now, like going nine months without a period, I'm there, right?

I'm essentially menopausal. I'm just waiting for that one year label tick, you know, and it's around the corner. So yeah. Tell me about it. I want to be I want to be on the other side of this in my second spring and I feel more powerful than I ever did in my thirties or forties at this point.

Like, I know a lot of stuff and I'm still, you know, vibrant and sexy and all of it. So I want to make sure. Yes, you are. I can tell you I'm sitting across from you.

Yes, you are. And so I think that that I think that it's such a beautiful time for us to say, okay, what actually really matters to me. Right. So I've spent the last 20 years raising children, maybe helping my husband or, you know, being in service to others as women, we naturally do.

But how can I now turn some of that attention to me? Because now we don't have to worry about optimizing for our fertility. We don't have to worry about this this lunar cycle anymore.

We don't have to worry about this ebb and flow of estrogen and progesterone. It's kind of just sort of flatlined, like it's kind of all the same. And in some ways and I don't mean this in a derogatory sense, I actually mean this in like an empowering way.

We actually behave more male, right? So now we have that circadian rhythm that daily cycling through hormones that, you know, men and women cycle through.

And we don't have to worry about this lunar cycle anymore. So in many ways, we can actually push it like we can say, okay, so now what I really want to do is I maybe I want to work on my body composition, maybe I want to do a pull up, maybe I want to do a push up or, you know, whatever it is.

And you can you don't have to worry about some of the the, you know, effects that may be estrogen, high levels of estrogen might have on your ligaments, let's say, because now that estrogen level is kind of low.

So as a woman in menopause, we have all of her sex hormones are kind of low. And then we also want to keep in mind, I was mentioning in perimenopause that tendency towards being insulin resistance is at its high in menopause if you are not strategic about it.

Menopause, Metabolism, and Muscle Health

One of the things that we know about menopausal women also prior to menopause is that under the influence of estrogen, we do have a lot of cardioprotective benefits.

Right. So estrogen, there's receptors all over the body for, you know, the brain in the heart. And one of the things that one of the reasons why researchers think that women have a later onset of cardiovascular disease and cerebrovascular disease is because of the protective effect that estrogen had in our fertile years that men just don't have.

So in some ways, we're sort of like metabolic superheroes up until menopause. And then once we enter that portal, if we are not if we don't have a healthy amount of muscle mass, our cardiopulmonary system is weak.

Then we have with that lowered estrogen environment, we are more vulnerable to it kind of. It almost equates to the guys to that development of cardiovascular disease.

So it is very important for a woman in menopause to be thinking about her movement program. So is she walking? Is she getting sunlight and walking is great.

But there are you know, I have a I'll state my bias I think resistance every woman should be resistance training irrespective of age but particularly in menopause.

We want to be lifting heavy and lifting often with the goal of becoming stronger because it's going to protect your bones, it's going to drive hypertrophy like it's going to drive muscle mass, which is going to keep you like keep your heart protected.

It's going to protect against osteopenia and osteoporosis, all of these different things. So I would say that's generally the hormonal environment and some of the concerns that we think about as a woman is in her fifties and and beyond is like, can we keep her heart and her lungs really healthy?

Can we keep her bones dense, and can we keep as much muscle mass, at least at the very minimum, maintain what she has, but ideally add to her muscle mass as she ages so she actually gets better as she ages.

Like a vintage wine. Right. Versus sort of deteriorating. Yes. Okay. So now we've unpacked all the phases of being a woman. And let me tell you, we accomplished a lot.

Yeah, we're complex and we're just tipping the iceberg here. So we've covered all our stages in terms of how hormones fluctuate. Now, can you connect it to mitochondria energy production?

And why is this important? Why are we having a hormone discussion on a mitochondria summit? And I'll tell you, it's not. The summit wouldn't be complete without not a women's hormone discussion.

So can you share with our audience that connection there between hormones and these little mercury? Yes. These little mitochondria that we love? This is and our our mitochondria are our bacterial lineage.

Lineage, right. We get this from our mama, right? We get this from mom through the privilege of hopefully passing through the birth canal. We take in some of the bacteria from the vaginal microbiome.

We inhale that as we're kind of passing through. And then that starts to colonize our own eventually. But first the gut and then, you know, throughout the body.

So we have to thank our mamas for this mitochondrial lineage that we have. It is it is passed down through women. So first, before I connect and I know that this has been discussed already, but what we want to do is we want to just define what energy is.

And then I'll and then I'll kind of piece together how the how the hormones come into it. So essentially when we're talking about energy, which is produced by the mitochondria, we need substrate, right?

So we need basically like a precursor in order to get into and I'm sure you've had other experts on the show and PhDs and all all the sort of, you know, world renowned experts, the show talking about what that what that ATP cycle is.

But we we basically get substrate from two sources, exogenous and endogenous. So the exogenous exterior outside sources of food are going to be our dietary carbohydrates, our dietary proteins, our dietary fats, fiber, that kind of thing.

And then the internal will or endogenous, if you will, food sources are going to be things like glycogen, which is the stored form of glucose. It's going to be our trace of glycerin, which is the storage form of fat.

And so I wanted to just start there because if we think about the scenario of a woman, I'll give you a scenario. So we have a woman in her. Let's call her 45 years old.

She's had two pregnancies. Let's say she's working. Maybe she's sleep deprived because her kids are. Well, we'll just pretend we'll just talk about me for a moment.

So we we talking about yourself, right? I'm asking for a friend. Yeah. So it's I well, my 12 year old and my ten year old, so I've had, you know, like several years of sleep disturbed.

Like I've been sleep deprived in one way or another. Right. And then the other. And then the other piece I'll say is women I mentioned before that, you know, we are typically typically caregivers.

We also generally do a lot of the what's called the non paid work at home, meaning she goes to work 9 to 5, she makes bank and then she comes home and she's still continues to work.

So she does the laundry, she does the school work with the kids. She's the soccer mom. She's the, you know, the meal planner. Like nobody would eat if it weren't for mom.

Even if it's takeout. Nobody would if it weren't for mom. Exactly. Exactly. So we have all of this. This is and this is a very typical scenario. And then you have a diet where maybe she can't get going in the day without coffee.

So she has to kind of stumble down the stairs or whatever, you know, from her bedroom to her car. Yeah, but I'm showing my coffee cup. Yeah, this is. A yeah.

So we have coffee off to the side. And so you're describing me to like we're, we're, we're entrepreneur working mommas, like we're talking ourselves here.

Yeah, exactly. So you can be an entrepreneur, stay at home, like or, you know, someone who's kind of gone back to work after her, her babies are grown up, and so maybe she is living on coffee.

Maybe she is, you know, at lunch time, if she's really good, she's packed a lunch. More likely she's going to get some fast food with some colleagues or she's getting some processed foods or maybe she's getting a salad or whatever and she's not moving.

Right. She's probably what I like to call a desk jockey. So she's like sitting at her. She's sitting at her desk for six, seven, eight, nine, ten, us, right?

This is us. It's 10 hours a day. And then she kind of gets to the gym. She can. So we have that physically, right. So these are some of the physical and chemical ways that she's living mentally.

She's probably we all like hands up, if you know what, mom, guilt is. Right? Like you're beating yourself up for not

being able to do it. All right? You're not good enough, smart enough, worthy enough, pretty enough.

You're not doing. Not a good enough mom. Not a good enough, not some. All of those things. Now and then your teenager will accuse you of working too much.

And that really hurts. It's like, okay, but you want all that stuff. You you want you want to live the high life. Mama's got to work. Yeah, Mama's got a mama's got to make bank, right?

And they and teenagers, they know your butt. They know which buttons hurt the most. They know where the dagger goes and the easiest right and how to turn it.

So God bless them. But, you know, teenagers can be can be difficult, you know, emotionally for sort of not ready for the pushback that sometimes we don't get with them.

Yeah. So all of that, that life. Right. Which is probably 80 to 90% of the women that are listening here. Right. There's going to be like 10% that like that's not me.

I totally do everything perfectly and like, honestly, good for you, bless you. But for like the 80 to 90% of the rest of us, this is sort of an environment for this low grade stress or low grade inflammation, right?

So we're kind of chronically sub clinically inflamed. Right. And the reason why this matters with mitochondria is this is going to now induce a metabolic switch.

So when you are living this way, you have this low grade chronic inflammation, you're not waking up refreshed, refreshed. You're doing all the things the superwoman syndrome that I was just describing.

You're going to move from what you know, the way that we produce ATP in the most abundant and efficient way for the cool cats listening, it's oxidative phosphorylation or oxidized if you're super cool.

So this is like big amounts of ATP. This is the and this is produced inside the mitochondria. This oxidized is energy efficient oxidative phosphorylation switches.

When you were in that low grade kind of chronic inflammation too, it's less efficient but fast acting. So you're going to get more. It's going to be quicker, but going to get less of it.

And this is called aerobic glycolysis. The problem with glycolysis, of course, is that it increases something called reactive oxygen species, which are oxidants.

It's going to reduce insulin sensitivity. So for that perimenopausal woman that's kind of already insulin insensitive, it's going to further augment her insulin insensitivity.

Mitochondria, Stress, and Energy Production

And the net effect, of course, now is that she has less glucose availability for her cells to make cellular energy. So this is this is the connection, right?

So when we when we are thinking about a woman as a whole, we sort of want to start off with her stress levels. Like what are your stress levels? What's your cortisol output? Right.

And we also what we want to be thinking about adrenal health, which is essentially what that comes down to in that sympathetic hypothalamic pituitary adrenal axis.

And that is what kind of starts off the cascade side of now. And that will, you know, when we are in this sort of hyper caught Islamic State that is now going to bleed into, pun intended, into our menstrual cycle.

We are now going to see derangements with estrogen derangements and progesterone derangements and testosterone, all the things that we've been talking about.

We'll also see circadian rhythm changes, sleep disturbance, SES and I'm sure you're going to have other individuals here that are going to talk about sleep, but sleep in and of itself, poor sleep in and of itself is also going to switch you into that inferior fuel partitioning so that OCS, faster glycolysis is going to bring you into efficient, to not efficient, it's going to lower your insulin sensitivity again.

You're going to probably eat more crap. Like you're probably going to want to go for the Haagen-Dazs or the cookie or the protein bars and most protein bars.

Let's just be honest. They're like candy bars with a bit of protein in them. Your motivation, let's say, to go to the gym and even work out is going to tank.

Right. And your emotional regulation is also. I feel like you're describing me right now. I mean, full disclosure, I let all my clients know that I'm not perfect, right?

I'm human just like everybody else. And I've got the same stressors. And you to Dr. Stephanie, you've got these stressors, the same thing. We happen to know how to support ourselves, but we have the same cravings, the same like our bodies are doing the same thing and the struggle is the same for us to not eat the sweet thing to even though I don't feel like exercising to do it anyway, I mean, it's it's real.

Yeah. Yeah. 100%. 100%. We all in sort of our forties and fifties are dealing with the same thing. So I really, you know, my, my hope with talking to you and, you know, doing the podcast in the book and all the things is to educate women so that they don't misinterpret their experience.

They don't because what do women do when something doesn't work? Oh, it must be me. I suck. I'm the worst. I can't ever get anything together so that we understand what's happening physiologically, so that we can.

That it doesn't affect our belief structure about ourselves, that we can maybe give ourselves a little bit like in the same way that we give our children grace, love and forgiveness that we can maybe impart some of those virtues onto ourself as well, so that we can kind of get through it and maybe get through it together, right?

Like maybe we can also come together in circle we have for thousands of years and we can start talking about what it's like to go through perimenopause and share best practices in the way that you and I are doing.

My gosh, I love this. And to do it in community. So this is this is also something that you bring up a point here that doing it alone is very difficult.

And so for those of you watching this interview right now, I want you to find the people on this summit who are speaking, who resonate with you, who can support you in your journey, because you cannot do it alone.

You must you must put community around you. And fortunately, the world's become a little smaller. I mean, Doctor Stephanie, you're way up in Canada and I'm down here in Southern California.

And we are we can be in the same community because virtually we can connect, even though we can't physically. So you can be in virtual circle with women.

And so this is what I'm going to encourage everyone to do. I mean, even me recently I finally said, I can't do this alone anymore. I know everything to do, but I got to hire somebody to keep me accountable.

So, you know, every doctor has a doctor. Every coach has a coach, every practitioner has a practitioner. I've got an army of them that I answer to to help keep me going.

So so Doctor Stephanie and I don't have some magic inside of us that makes us different than all of you watching.

We need support, too. We need circle to we need women support also. Yes.

I love that you said that all the best doctors have doctors. All the best coaches have coaches. Yes. That's just how it goes. And, you know, I think that if you surround yourself, you know, if you surround yourself with women who have the openness and willingness to grow and you can do that together, and maybe it's facilitated by a coach or facilitated by a physician, you know, your experience is just going to be that much better.

Yeah. Okay. So final words here as we close and I want to make sure our audience knows where to find you talk a little bit about your book, too. We didn't we didn't go into that yet.

But you have a really great book and talk about your podcast. But final words of wisdom for women that are now seeing a glimmer of hope hearing this discussion.

What are some things they can do to move the needle here? I would say off the bat, so I've stated my bias before, but I would say, first of all, I actually say my philosophical premise around healing and wholeness is that your body knows what to do.

You just have to give her the signals. You have to put her in the environment that she is going to thrive the best. And you are an agent for your body.

So the more that you learn and the more that you know, like from this conversation, you're going to be able to best serve your beautiful body and she will heal, right?

So let's start from a place of love. Not I'm disgusting. I can't believe I put on £10. I don't like my stomach. Whatever that looks like. Start from a place of reverence for the incredible body that's probably birthed some humans, that's probably recovered and breast fed and has dealt with sleepless nights and maybe a divorce and aging parents and all the things.

So that's the first thing. Some actionable items that we can maybe talk about is resistance training. We've I've already sort of I've sprinkled that into our talk, but if you are not resistance training, you are going to have weak bones and you're going to have weak muscles.

And these are the things this is the currency that we really need to be built. We need to be building up, you know, like a you know, they always talk about like a nest egg, let's say, with your finances, like the golden egg or however they say it.

The same is true with your bones and your muscles. You need to have thick bones. You need to have dense and thick muscles as well that are strong. You need to have joints that are signaling properly to the brain so that you don't trip and fall on an icy day.

Or if you live in Southern California, you don't just trip and fall on an outstretched, outstretched hand. We call that like a foot injury where you're maybe fracturing the wrist or the arm or you fall on the hip and crack the hip, that kind of thing.

So resistance training and load bearing activity and I would say prioritize that over the cardio walking. I will say one of the most underrated cardio activities.

You don't even realize that you're doing it.

Practical Strategies for Womenu2019s Health

And if you just let's say you're going to Costco or Walmart, you could park at the back of the parking lot, get a little bit, you know, a few more steps in.

And that's usually my cardio actually is just kind of walking. At the end of the day, I like to take a walk with my

family or I'll take sort of movement snacks through the day.

So if I need, you know, for me it's like around 2:00 my time where I'm like, Gosh, I just need to get up and move a little bit. I'll take a little lap around the neighborhood two or 3:00 before I go and get the kids.

So that's that's kind of one thing. The other thing, of course, we've talked about starting from a place of love and then Whole Foods so we can get into all the debates around food and the protein and the macros and the fad and keto and carnivore and vegan, all that stuff.

I would say if you're eating whole Foods and you're getting a full complement of protein in your forties, certainly it's very important to prioritize protein again to drive that muscle protein synthesis.

And you tell us how many milligrams you recommend per day for women. Yeah. So I would say one gram of protein per pound of ideal body weight. So let's say you want to be.

I don't I'm just pulling a number out of the air here. You want to be £150. That would mean that you're consuming 150 grams of protein a day. Well, so even if you're overweight, even a 150 is still overweight.

You would suggest that. Correct? Yeah. So you really want to prioritize protein. And the reason for that, I mean, there's many one is that protein is highly filling, right?

So it's satiating. So you're going to feel fuller for longer. The other thing is that there's there's something called the thermal effect of food. So when we are consuming protein, let's say we consume 100 calories of protein in order to break down the protein into their constituent amino acids, your body actually has to expend some energy in breaking some of those bonds up.

So if you take in 100 calories, the thermal effect of food, A for protein, depending on the protein source, you're probably only going to be able to digest 70 to 80 calories of that one calories of protein.

Whereas if you take in fat, there's like whatever fat calories you take in is kind of what you're getting. Same is true for carbohydrates, more or less.

So there's this kind of caloric deficit, if you will, that kind of comes into play when you're consuming proteins. And, you know, proteins are all over like skin, hair, nails.

You want good skin, hair, nails. We need protein. We need good, strong bones. We need good strong muscles. You need protein for that. So whatever, let's say weight goal you have let's say you want to if you're a £160 now, you want to be 150 or you know, you will consume the same amount in grams of that protein.

So. Right. And my bias, of course, is animal based proteins. I do think that they are full. We get the full complement of amino acids, but certainly it can be done.

If you're a vegetarian or vegan, you just have to really make sure you do your like jurisprudence and making sure you're getting the full complement of amino acids there.

Yeah, I am. Your advice? Just eat real food, eat whole food, eat unprocessed food. So important. So you're winning no matter what side of the diet spectrum you're on, if it's real feeling.

Yeah. And this is kind of one the last one of the last one, I'll say if I can, is just have orgasms like, you know. If I can just. Have like just had lots of orgasms.

We are designed to have pleasure. We have a clitoris for a reason. It has no other function in the body other than pleasure. That's the only function of your clitoris is to make you feel good.

So please use it. It helps to balance out the hormones as we've been talking about ourselves with all the things. All

the things. I love this. Yeah. I was like, I expecting that to be your last point.

So that's amazing. An exclamation point to end of our conversation. 100%. Okay. Where tell us about where our audience can find you. How do they get in touch if they want to learn more from you?

Sure. Yeah. So we put out a podcast every week. It's called Better with Dr. Stephanie, and we explore a lot of the conversation that we've had today hormones, diet, exercise, sex, parenting, guilt, shame, forgiveness, all the things.

So you can find that anywhere where you listen to podcasts. I have a book, as you mentioned, it's called The Betty Body, named after the Better podcast.

It's basically How to Get Your Best Body. Talking about, again, some of the concepts that we've talked about today. There's a program and there's a plan in there to help you heal.

It's a female centric ketogenic diet. And then we move into I sort of have two phases. One is keto, which is sort of improving in some sensitivity. And then we move into a higher protein diet, which we've talked about today and some some of the benefits there.

So Betty body and then I try to be as active as I can on Instagram. So Doctor, first name, last name Dr. Stephanie Edema and you'll see me post a couple times a week on Instagram.

They're just so good, so good. Thank you so much for this wonderful talk. This has been so much fun. And also, I want to thank you for your contribution and what you are creating here.

I mean, the the struggle is going to be real. We are not out of the woods in terms of women kind of being lumped into the whole category of same same as men.

And we're not we are very different. We have different needs. And and I want to thank you because it's it's an uphill struggle. It's an uphill battle to fight for what women need to heal.

So this is why these conversations matter. So thank you for putting putting an event on like this one. Absolutely. Until next time. Everyone take care bye now.