Your Fertility & Quantum Biology: A Crucial Connection Transcript

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Introduction and Quantum Biology Basics

Welcome, Dr. Catherine. It's great to have you here. I'm so happy to chat with you. I've we've known each other for so long, so it's finally great to have the opportunity to officially pick your brain.

And you've just been such a wealth of information and education and empowerment. So I think this will be awesome. Oh, absolutely. It's so wonderful to talk with you.

And I'm just honored to be here today. So thank you so much for having me on. Absolutely. So let's dive right in. What is quantum biology? That's a great question. Right.

Because so many of us have heard of quantum physics and we've heard of biology, but we haven't heard of that marriage of the two. And it's a new emerging field that really brings some validation to these practices that we've been using over millennia as humans.

Right. And so it's the study of quantum phenomenon like entanglement and tunneling and coherence in living systems. It's really the underpinnings of life and our biology.

And simply put, it's just looking at the flow of electrons and protons, photons of light, photons from sound, our thoughts and emotions and how those impact life and our biology.

It's a fascinating field.

How Quantum Biology Affects Fertility

So tell me, like in kind of the practical way, how does this knowledge, the awareness that we have, this like exchange of photons and electrons and all the other things, how does it affect us if for let's just make it super tangible for people that are going through their fertility journey?

Yes, absolutely. So all of these big words are talking about how it's the smallest gears that start moving to initiate what we see on our lab work. Right.

Are our symptoms or our, you know, fertility, our hormone patterns and and panels and all of these things start and initiate with quantum action on a very small level.

What's happening in the mitochondria at those little jellybeans shape organelles inside of our cells, creating the backbone of our hormones, our energy, our fertility.

That has to do with the flow of electrons and protons. Right? So that's a huge piece of quantum biology, how our light environment is working with our hormones and our state of health is another really foundational thing.

So while I might be talking about electron and protons and photons, really, I'm talking about our state of energy, our ability to make hormones, our ability to get pregnant and stay pregnant, our ability to have our circadian rhythms working in a way in our light environment, working in a way where we are healthy and thriving.

Okay. So you're it's not the type of energy that you have energy to get through my day. But we're talking about like a subtler energy that is influencing, like how our cells work, our endocrine system works, how our body makes hormones, how it communicates with each other, just all of the like underpinning of energy, quote unquote.

That just doesn't really have a better word. Yeah, absolutely. Absolutely. You're spot on. It's how our smallest pieces down to the cell. Right. And the little things inside the cell, how they're working to create that energy.

And we know from the research that any dip in mitochondrial function or cellular energy creates a dip in that function wherever those mitochondria are.

Right. So if they're in the ovary, the uterus, the vaginal canal, if they're in the adrenal glands, the thyroid, wherever those cells are, the mitochondria have to be working at an optimal level for us to feel whatever it is that organ supposed to be doing it.

If it's hormones to have optimal hormone level, if it's creating that cortisol and energy from the adrenal glands, then absolutely it'll be that energy for the day.

Mitochondria and Hormone Production

If it's are digestive function and you name it wherever it is, we want those mitochondria to be working at their optimal level. Yeah. And mitochondria like the energy centers or the energy warehouses of our body, and they're in every cell.

What's really cool is that our reproductive systems have 200 times the mitochondria as anywhere else in the body. So essentially just based on that, we can assume that mitochondrial health is extremely important to fertility.

Oh, absolutely. Yeah. It's foundational. And it's not it's not only like you said, the reproductive organs and how they're working and like the growth of a fetus.

But it's it's all of that, right? Because our mitochondria are the first starting point for pregnenolone and pregnenolone is that master hormone that gets shunted into our sex hormones, our estrogen and testosterone and progesterone.

And if that is inadequate, then our hormones aren't where they need to be for us to be having optimal fertility. I can't think of a thing, a function in the body, a tissue, an organ, or a biological process that doesn't require our mitochondria to be working.

Yeah. Yeah. So let's talk about some of the things that maybe are obstructing mitochondrial function or things that can support the improvement of mitochondrial function.

Oh, yeah, absolutely. This is a huge field of research. Right. And so let's talk about the foundations, the low hanging fruit, the things that are easy for people to start utilizing.

So our light environment is a huge piece of our mitochondrial function. When I talk about light environment, we as humans nowadays, we have to write. We have like I have these sliding glass doors and natural windows behind me or actually in front of me that are creating this natural light environment from the sun.

But I also have these ring lights and all of this artificial lighting in front of me. Yeah. And so we really have that dual input of the natural light and the artificial light.

And so it's all about fine tuning that because we know that the artificial light in our environment is a very small spectrum of blue. So if we're looking at the electromagnetic spectrum, it is wide from like gamma rays and microwaves to through the UV into the visible spectrum and then into infrared and on and the visible spectrum is just a very small spectrum of the visible spectrum that we see, right?

Light Environment and Circadian Health

All these beautiful colors around us. It's a very small sliver and our artificial lighting is even smaller. It's a very narrow band of blue light. It's not even the full spectrum of blue light, right?

And so this blue light actually spaces the proteins in the mitochondria further apart. So how do we create energy in the mitochondria? We have electrons and we shuttle them down the electron transport chain.

And when they get to the end of that chain, they make ATP, that energy source, that energy currency of the body. And so if those proteins aren't close enough, what these electrons are doing is they're tunneling their quantum tunneling from protein to protein down the chain.

And if those proteins are too far apart, they can't do that efficiently and we don't make as much ATP, then we have that decrease in mitochondrial function and then we have that decrease in whatever that those mitochondria are in the ovaries or whatever.

When we're talking about our light environment, that blue light that we get from our screens is important to understand that it can space those proteins further apart.

So we need to balance that with some of that full spectrum light. And like I just said, I have natural light coming in here. I've got my lights set up around me, all these unnatural light, a manmade light, artificial light.

And if I had a spectrometer where I was measuring this, we would see that the spectrum is really low. Even though I have all of these lights and I can pull in a red light and a blue light and a green light and the actual colored lights still the spectrum would stay really low.

But if I took that meter outside, even though I'm here in the Pacific Northwest and it's a cloudy, gray day like it is for months here in the winter, I was.

Wondering if it was. We saw the sun the other day that was like, Oh, we've got to do that. But another thing that rains a lot. Yeah, total early. Absolutely.

But even on those gray days, if I take that meter out the spectrum, the bandwidth is so much bigger than in the artificial light. So what I talk with people a lot about is getting that natural light.

And when the sun rises, it's giving us a lot of red and orange light. And that's so beneficial for the body, it's beneficial for our mitochondria. And then it rises into the U. V.

spectrum, right? And of course, we want to be careful and safe with that. We don't want to get some burn and damage to our skin, but getting that natural light in our eyes, whether that's taking your break outside, eating lunch outside, that can be huge for our fertility, for our hormones, for our inflammation.

And then when that sun goes down, lowering the lights around us is really important. And so many of us have lives that we've set up where we do have to have that artificial lighting at night.

So wearing something like blue light blocking glasses are really important. But I try you know, my my kids are so used to their strange mother when the sun goes down here, I try to have us all transition to, like, incandescent lights or orange lights.

And what that does is when we get that morning natural light from the sun, it dumps our cortisol so that we have energy, our dopamine, our serotonin and all these neurotransmitters so that we feel well and it sets up a hormonal cascade.

And then when we lower the lights at night, that's serotonin from the morning, gets converted into melatonin so that it's acting as an antioxidant and going through and scavenging damaged cells and repairing.

We see an increase in growth hormone. The increase in thyroid hormones is this diurnal rhythm, right? We're meant to be living by the rhythm of the sun.

So making sure that we're balancing our artificial light with natural light in the morning, throughout the day, and then lowering that late at night can be incredibly impactful for our fertility journey.

Yeah, absolutely. So really balancing out that cortisol and melatonin or that circadian rhythm. And I remember

seeing a few research studies that essentially are suggesting that the production of melatonin in our bodies is not the same as taking a supplement of melatonin.

Yeah. Yeah, absolutely. It it really is important that we're facilitating that natural production because it's tied to so many things. I think the last review I looked at it was like 253 different, you know, enzymes and cascades that melatonin is interacting with.

So we think of that like, okay, it helps us sleep at night, it helps us repair and helps scavenge damage, which it absolutely does. But there's also 250 other things that it's doing in the body, right?

Yeah. Yeah, absolutely. And fertility is one of those areas. Melatonin is probably one of the most powerful antioxidants. And it has there's really good research on fertility in melatonin.

So really like optimizing the production of our own melatonin is optimal if you need to supplement, supplement. But really having your body produced in an adequate amount is ideal.

Absolutely. You are spot on. I completely agree. And the best way to do that is to be mindful of our light environment, because that's the biggest stimulus of our melatonin rhythm.

So something as easy as just being conscious of, oh my gosh, I've been inside all day and I need to go outside and get that full spectrum later. I need to start my mornings with a little bit of natural light, or I need to turn down the lights at night or put on my blockers or put on my like blue light blockers on my devices.

There's so many different options. It's not expensive, it's accessible, and it has a huge impact, just like you were saying. Yeah, yeah. Do you like those like salt lamps or whatever they call them with the rocks?

Red Light, Infrared, and Laser Therapies

I do. I have one right behind me. And they say a lot of different benefits about them. But I'm not 100% sold on all those benefits. But the one I installed on is the beautiful light it creates.

It's it's not stimulating. So even the red lights. Right. Can be kind of stimulating to our biology. We want to turn on that chill phase. Right? We want to get ready for bed, even if it's a few hours before.

Right. We want to really create that environment. And I think salt lamps are wonderful for that just because of the light that they give off, right? Yeah, absolutely.

Since we're on the topic of light, are there any like therapeutic lights, like a lot of people are, have probably heard of like red light therapy? Are there ones that you love?

Absolutely. There's some wonderful manufacturers out there that are doing really great work with their red light devices. They are the ones that will have some of the research published on their website.

And whenever I get asked about products, I think that's my go to answer is if it's a reputable company and they're being successful, they will have done some research and it costs money to do that.

So that will be on their website. So little box, too. There's so many brands out there that are doing a great job with really dialing in the frequencies, right?

So I was talking a little bit about that band of electromagnetic spectrum and that's what light is, right? And so when we're talking about what we see, we're going from like the Blue Violet Blues, green, yellow, orange, red, and then into infra red and a lot of the red and infrared spectrum.

And we're talking from, you know, that red light from 680 to 800 is, you know, it's a spectrum nanometer. And that means the length of the wave. And that's important because the different wavelengths of waves impact our body

differently.

And so the longer waves up in the 800 and into the infrared range, which gets much, much longer in wavelength, those go in and they directly impact our mitochondrial function just like we've been talking about.

Right, how important that is for our fertility and for our overall health. And so what you want to make sure of when you're looking into a red light therapy device or an infrared light therapy device, is that spectrum.

And there's been a lot of research in those different like 600 of some of the higher thousand range spectrum of infrared light. And those machines, if they are doing that properly, they will list what wavelength they're using in nanometers.

Right. And, and and so that's what that means in 680. And it's like, okay, I know this is going to impact my mitochondrial function. And so anything in that range is going to be beneficial for our mitochondrial function.

And so when I'm talking with people about that, that's something that's really important, is to make sure that whatever device you're working with has been shown to have a certain kind of wavelength.

Yeah, yeah. So the range is 620 to 760 did you say or the 820 range. Yeah, absolutely. So it's about 600 to 800, right. For that red light. And then a little bit further for that infrared, the infrared can reach a little bit deeper into the body.

So those wavelengths are a little bit longer into the thousands. And so that range of red light and infrared light both impact our mitochondrial function.

They actually increase those electrons going down the chain. They make it much more efficient, creating more ATP and energy, currency so they can be really effective.

Yeah, yeah. I love them. What about lasers? What do you think about laser as a light therapy? Yeah, absolutely. Low level laser light therapy can be really helpful.

Absolutely. Just so many different ones out there and pulsed electromagnetic frequencies.

Microbiome and Mitochondrial Crosstalk

There's so many different devices out there that can be really targeted for, you know, what we're looking to target and impact and improve. And I think, honestly, that the research that's been coming out in the last couple of decades is really exciting and points to a new future in health care, where we're not having to take so many things orally, so many chemical compounds, whether it's pharmaceutical or natural, there's this underlying mechanism of light and how the body works with light.

So it's fascinating. And yeah, love it. I love it. Are there any other things that are this impacting the quantum biology as far as tools or therapeutics that you find really helpful in shifting how the mitochondria function and how to optimize that function?

Yeah, I think that when we're talking about mitochondria, just a little step back and understanding that the dominant theory out there is that our mitochondria came from a symbiosis with bacteria and we know clearly from the research that there's this crosstalk between our mitochondria and the microbiome, those bacteria that live within us in our gut, in our vaginal canal and our uterus.

So there's this beautiful relationship that's happening there from a quantum biological perspective where these microbes are giving off little metabolites that influence the mitochondria to work more efficiently to adapt to their environment.

So I think that the relationship between the microbiome. Ohmes I will say ESA's because we know everything has a

microbiome, right? And the mitochondria are really important and looking from a quantum biological perspective, they influence that production of ATP with the flow of electrons and protons.

They serve as messengers, right? Our mitochondria aren't just producing energy, they're actually like these little antenna. They get messages from the microbiome and then they send out messages like reactive oxidative species, reactive nitrogen species and nitric oxide works in tandem with the mitochondria.

So it's this beautiful sort of messaging system where they're getting these signals and then emitting signals. So everything in the body knows what's happening.

And so having a microbiome, that is what we evolved with, where we're meant to have that balanced microbiome is really important for mitochondrial function.

MM Yeah. So there is so much research in terms of the reproductive microbiome and the impact that it has on fertility. And you said microbiomes and it's literally there's at least five, I think maybe closer to seven microbiomes that are unique to different parts of our reproductive system.

It's wild, so wild. And it's cool because it's a cutting edge of fertility right now. But from this, I feel like you have this deeper aspect of the interplay between the microbiomes and the micro mitochondria.

So in your experience, what are the impacts of this on fertility? Yeah, absolutely. So when we're talking about this, you know, sometimes I get in this habit of the mitochondria are like way over here, but we have to realize that they're right there in the vaginal tract rates of the cells of the vaginal track have mitochondria in them, the cells of the uterus have mitochondria in them, the ovaries.

All these different pieces have mitochondria in those cells. And the microbiome, if balanced, right, is predominantly a lactobacillus environment like in the vaginal track, the uterine, the uterus, the uterine lining.

And what that's doing is it's decreasing that page. So that this biotic overgrowth can happen, right? So that microbiomes that are less friendly to fertility don't happen.

They decrease that page so that implantation can happen, right? So that that is something that's favorable because when we see a really low page, we see that implantation is harder and not successful.

We also see that it's creating this inflammatory cascade. So if we don't have the right flora there, then it's creating those inflammatory metabolic sites that go to the mitochondria and say, okay, you need to slow down your energy production, which is not what we want.

So you've got this sort of multiple layered impact happening there where you've got the page that's impacting the health, the fertility implantation as well as the growth of the fetus.

Right. As well as even after birth.

Thoughts, Emotions, and Fertility Health

When we give birth, that vaginal and uterine microbiome helps seed our infants and that helps set up health for them for a lifetime. So you see it from pre-conception to conception to pregnancy to that fourth trimester after we've given birth to these beautiful babies and how that impacts their life.

It's this matter of what the microbes themselves are doing with the things they're creating, the metabolites they're creating, the cytokines and inflammatory cascades that they're influencing in the body as well as the crosstalk with the mitochondria.

If we don't have adequate mitochondria and working in those fertility organs and tissues, then it makes pregnancy so much more difficult. So it's this really dynamic relationship and crosstalk happening between the two.

Yeah. And it's just so fun when we see this all like how it all fits together, right? Like it's the interplay between all of these things is just so cool.

Are there any therapies that you love or want to highlight that are connected to this kind of biology? I'm sure there's so many, but. Yeah, I think that thinking about see, eating the microbiome in those areas in the vaginal track and the uterus and all those different organs that and tissues that we use to get pregnant and for fertility.

I really think that understanding the relationship between those microbiomes and the gut microbiome are really important, and that brings up those ideas of eating fiber, eating a diverse diet of vegetables and fruit, those colors, not to get too technical, but those colors that we're eating, they have these hexagons in them.

They have these benzene rings. And these benzene rings create communication between the food that we're eating, the mitochondria there, the microbiome there.

Then that transfers to the microbiome and mitochondria in those fertility areas that we're talking about. So is this beautiful system of quantum communication that's underpinning all of this communication.

And so I think that really looking at our overall microbiome health and one of the easiest ways to do this with what we're eating, even when we're talking about the vaginal microbiome, right, that is really being seeded by that gastrointestinal microbiome, talking about dealing in our light environment like we did is really important for that fertility conversation to happen between the microbiome and the mitochondria and something that a lot of us don't think about but is also really important when we're looking at it from a quantum biological lens is the impact of our thoughts and emotions.

There's a frequency there in our thoughts and emotions that impacts our mitochondrial function. And so whenever I start talking about emotions, I always like to give a disclaimer that that we're human right?

We're meant to have all the emotions. We're meant to have fear and anger and frustration, grief, these emotions that like in mainstream psychology, are deemed sort of negative emotions.

Right. But I think that our society's really uncomfortable with some of these bigger emotions, and especially when we're talking about fertility and being a mother, a pregnant woman, it's or someone going through that fertility journey, having those feelings is normal.

And what we see in the research is that these ruminating feelings, if we let them linger, we stuff them away so they're not addressed. Those can decrease our mitochondrial function all throughout the body.

And so understanding that at some vulnerable period in our life, right where we are dealing with these big emotions, understanding that making space for them, inviting them in, as strange as that sounds mean and mindful and okay with some of the emotions and of course, love and gratitude and joy and contentment are wonderful for our mitochondrial function and overall health.

Whole-Person Healing and Closing Reflections

But those other emotions, those big or scary emotions or less approved by society, also have a place if we can invite them in and let them work their way through us right.

And so those types of practices, whether it's making space for an uncomfortable emotion or cultivating a gratitude to practice or a practice where we take account of the things we love in our environment, all of those different things actually have an effect on this quantum flow of energy through the mitochondria.

So that's something that I always like to talk to people about because I've never seen a patient who isn't dealing with some kind of sense of, you know, lack of safety or lack of belonging or I have this vague emotion.

I don't know what to do with it. So I started down or I shoved it on that person or whatever it may be. And just

walking with them, holding space for them, allowing them to be with those emotions, both, you know, quote unquote good or quote unquote bad, really allows our mitochondria to function optimally and really has an impact on that fertility journey.

Thank you for that reminder. I think it's just so vital because we tend to focus on one aspect really strongly and then forget the other. But really like we're integrated humans and integrated with the microbiomes, I should say.

But like all of these things are in there playing off of each other all of the time. So important to think of us as a whole rather than like, Oh, I'm focusing on my diet, or I'm detoxing or I'm doing this, I'm doing that.

It's really like the comprehensive approach that is going to transform people's fertility journeys faster. I feel absolutely, beautifully said. Absolutely.

It's that whole person approach and the splinter thing off of the diet and this and that can be helpful. But I think the real medicine comes from the relationships we cultivate right?

So like when I was sick, I was diagnosed with a couple of autoimmune conditions and Lyme disease and this started as a checklist. Okay, morning light.

Okay, lower the lights. Okay, get outside and this day and do my checklist. But after years, it turned into this relationship where I feel a sense of belonging and safety.

When the sun rises and sets, I feel that safety and the relationship I have with the natural world and the earth beneath my feet or the people in my life or the food that I'm choosing, you know, all of those relationships or the relationship I have with my inner dialog, I'm much more accepting and I recognize that's that piece that wants me to slow down.

It's not like, Oh, not the anxiety again. It's Oh, hello, you're here again to remind me of some things, right? And so these relationships we cultivate are the real medicine.

I love that. Thank you so much for sharing all of your with them. I feel my nervous system relaxing as we talk so I can feel like what you're talking about flows through you.

So thank you for just being an amazing human and for joining me on beyond infertility Summit. Thank You so much for having me and thank you for doing the work that you're doing this summit and your work are so important, so I'm grateful for you and and honored to be here today.

Thank you.