



#523 The Future of Fertility: Biological Age and Toxins

With **Dr Katherine Zagone**

Dr. Katherine Zagone, ND

I've also seen women who have conceived naturally, sometimes on accident at 46-47 years old. And I've seen women in their 30s struggle. Some of it is genetics, but a lot more of it is what your entire lifestyle has been like up to that point. You think your biological clock is ticking, but your biological age is going to be much younger a year from now than if you are trying to get pregnant in the next two to three months. So that you are healthier a year from now than you are at this moment, which gives you a better chance of a better outcome.

Dr. Wendy Myers

Hello, everyone. I'm Dr. Wendy Myers. Welcome to the Myers detox podcast. And today on the show, we're having Dr. Katherine Zagone and she is a naturopathic doctor specializing in fertility. And we're gonna be talking about all types of things related to hormones, hormone replacement therapy to fertility, and what you need to do as far as pre pregnancy planning, what toxins dramatically impact your ability to conceive, and why there is so much hope for you no matter what your age or, a large age range if you're looking to get pregnant, even into your 40s. And as well, if you've tried to conceive for quite some time with your conventional medical doctor, there's a whole other holistic approach that you can take to dramatically improve your chances of conceiving, including detoxification. And now a word from one of our sponsors. So imagine a world where we don't actually fight cancer, we just tell our bodies to stop growing it. It sounds groundbreaking, right? Dr. Dana Flavin, who is a world renowned cancer specialist for over 40 years, warns we are swimming in toxins that are in our daily products, our food, water and air. The real danger, these toxins signal our body to grow cancer. That's why I urge you to join Dr. Flavin and Nathan Crane, an award winning health researcher in an eye opening web class, they'll

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reveal the nine key toxins that could be triggering cancer in your body, and most importantly, how to eliminate them. Don't just fight cancer, go right to its root cause. So join me by going to conqueringcancer.com/WendyMyers to register for this free web class. It's so important. Make the change today. Dr. Katherine, thanks so much for joining me.

Dr. Katherine Zagone, ND

Thank you so much for having me, Wendy. It's such a pleasure.

Dr. Wendy Myers

Yeah, so why don't you tell us your website and how you got into this field focusing on women's fertility?

Dr. Katherine Zagone, ND

Yeah. So my website is clockwise.com. And I always knew that I was going into natural medicine and actually thought I was going to be a midwife for a little while. I loved birth, loved pregnancy, loved all of that stuff. And actually, when I was in my undergrad, I witnessed some family members of mine really going through the fertility struggle, like seven years, lots of rounds of IVF, lots of failed rounds. And they were in the conventional medical field. And, you know, I kept thinking like, there's got to be a better way. Like, there's got to be something else. Like why is this happening? I was just super curious. And so going into naturopathic medical school, I came in with the focus of what is fertility all about? What creates fertility? And can we change those factors? And, and sure enough, we can. And that's been a really beautiful journey of realizing and supporting my clients and realizing that fertility is really a byproduct of health.

Dr. Wendy Myers

Yes, and a big part of health is detoxification, as well. And you know, just your organic diet, etc. And so talk to us about fertility rates. So, so many people are struggling to conceive, I believe it's one in six or one in five couples that are having difficulty conceiving. Let's just start there. What do those numbers look like? And do you predict that's going to get worse in the future?

Dr. Katherine Zagone, ND

Yeah, so currently, about one in five to one in six couples is struggling to conceive. That doesn't necessarily include...and that's more like conventional infertility where they've tried for a year or six months depending on their age, and have not been able to conceive. And there's also this

whole group of what we call sub fertility. Meaning they might not technically be infertile, but there's, you know, unexplained infertility or sub fertility and nobody can kind of figure out why, but they still can't get pregnant. And, you know, part of the argument of the conventional world is that women are waiting longer to conceive. And that's true they are. And that's a beautiful thing. Because that means, you know, we can do our inner work, we can have a career, we're more financially stable, relationship stable, emotionally stable. So there's a lot of good benefits to that. But what's typically thought is that, like our biological clock hasn't quite caught up with that benefit. And I don't think that's entirely the case. What I think it actually is, and what I've seen in my practice, and in my research is that it's not that we just are alive more years is that we have more years of toxin exposure, we have more years of chronic stress. And these things accelerate ovarian aging, decrease our egg quality, decrease our egg quantity, decrease sperm quality, and therefore make it harder to conceive not because we're 40 versus 35. But because we have five more years of toxin exposure, essentially.

Dr. Wendy Myers

So, what is realistically the latest age, do you see women having an ability to conceive? So there's kind of a reality check-- The clock is ticking. I mean, I had an aunt who got pregnant at 47. So we're kind of like Fertile Myrtles over here, in the Meyers clan. But what for most people, what they realistically need to be looking at is a cut off time.

Dr. Katherine Zagone, ND

It's really individualized. Like, I've also seen women who have conceived naturally, sometimes by accident at 46-47 years old. And I've seen women, you know, in their 30s struggle. And so some of it is genetics, but a lot more of it is what your entire lifestyle has been like up to that point. What I like to use to quantify this as biological age, that's actually the age of your cells, what your DNA is telling us how old you are based on what's called epigenetics or DNA methylation, some fancy science terms. But we know that this is more important for fertility than your chronological age. So biological age, which can be measured through a few drops of blood. And there's research on this. So there is a paper showing that women with advanced biological age, meaning that their cellular age came back older than their chronological age, had poor outcomes, fewer eggs on egg freezing, fewer embryos with IVF, fewer live births, through the whole, you know, all aspects of the process. But what was interesting about this, it was even in women who are chronologically younger, so even a 30 year old woman, if her biological age came back older then she had fewer eggs, you know, poor quality embryos or fewer embryos, fewer live births in that cohort. And so

there's not like an age cutoff, we do know statistically that there is a decrease, you know, between 35 and 36, and 36, and 37. And that's actually only a few percentage points. And at 40, there is, you know, each month a lower chance of conceiving that month than maybe when you were 35, or 30, for sure. But it really takes one good egg, and that's the key word is good. And that does come down a lot to toxin exposure.

Dr. Wendy Myers

What toxins are affecting egg quality and also sperm quality. Let's talk about women first. So what toxins are impacting ultimately our ability to get pregnant?

Dr. Katherine Zagone, ND

The short answer is all of them. But to break it down some of the things that I test for that we can actually test on this at home fingerstick test. The three big ones we have tons of research on are the bisphenols. So this is BPA BPF, BPS, parabens, and phthalates, and there's lots of you know, lots of different phthalates. And there's plenty of research. And it's crazy to me how much research I can find in PubMed. But no conventional IVF Doc is actually testing for any of these things. But all three of these toxins, individually and combined, showed poor outcomes with embryo quantity and quality. Because even if you get a lot of embryos, it doesn't mean they're good. And live births, which that's the whole point is like, Can we get a healthy baby at the end of this. And all of these classes of toxins are associated with decreased success for all of those metrics, and also have been shown to increase time to conception, meaning you have to try longer by about 30% if there's any of those toxins in your system in order to conceive. So it's making it take longer. And then also if you're going through any of these reproductive technologies, poorer outcomes. And again, nobody is testing for this in the conventional world. We also see heavy metals, and one of those mechanisms is the DNA damage. So again, that's going to be an egg quality issue. If the DNA in the egg is not viable. That egg is not going to fertilize or not going to survive if it does get fertilized. DNA damage, also an issue in the sperm. So we see heavy metals, we see those plasticizers. Phthalates are also in fragrances, and not just perfume, but anything that has the word fragrance on it even a lot of these like Green Clean brands that just say fragrance as like that last ingredient that oftentimes has phthalates in it. Other ones that are like maybe less commonly thought of would be our mold or mycotoxins. I've had a few couples where that has been the main issue for them. And again, those can cause DNA damage, those can alter hormone signaling, hormone production, hormone metabolism. And when I'm looking at a case, when I'm looking at this couple, when I'm looking at both partners, because they're each, you

know, 50% of the equation. And we also think like, the burden tends to get put on the female more often. And it tends to get put on her and her age and her egg quality, when a lot of times, you know, it's like a third of the time, it's probably more her, a third of the time it's probably more him, and a third of the time it's some combination of both, it's what's been estimated in the research. And so, you know, we've got that DNA damage, we've got hormone disruption. And so literally all of these toxins are impacting our fertility, which is no wonder our fertility rates are dropping, testosterone levels are dropping, in men. You know, truly, like if we don't switch the trajectory of humanity, like we're not going to be around that much longer.

Dr. Wendy Myers

And that's one thing that I've heard Elon Musk talk about, we're not worried no longer about population increasing. We're worried about depopulation because people aren't having enough children, or there's decreasing sperm counts, like dramatically decreased sperm count. So can you talk about those numbers at all? About what it used to be, 150 years ago, and but what it is now and then what it's projected to be,

Dr. Katherine Zagone, ND

Yeah, do you mind if I pull up a statistic really quick? I want to make sure I get it right. I'm getting a lot of different numbers, as I'm kind of like looking stuff up here dropped from 104 to 49 million per milliliter over five decades, have dropped over 50%, 59%?

Dr. Wendy Myers

Let's freak the guys out.

Dr. Katherine Zagone, ND

Yeah, so officially, we know that, in the last 50 years, sperm counts have dropped at least 50%. And so some numbers are, you know, anywhere from, you know, around 100 million down to about 49-50 million per milliliter, which is significant. Are we on a linear trajectory? Are we, you know, what math we use? And how quickly is this going to go down to zero? Because that's a very scary thing to think about.

Dr. Wendy Myers

Yeah, it is. I mean, that's, you know, 50% reduction in fertility. I mean, it only takes one you know, but still you're reducing your odds, you know, so the fertility issues not just with with women and

their egg quality and so talk to us about what toxins affect the sperm as well and, and what role men can play in dramatically improving their chances of conception.

Dr. Katherine Zagone, ND

Yeah, so like I said, Men contribute 50% of the equation. And we need to make sure that there's healthy hormones so we need enough testosterone to help with that sperm development. That's important. We need the right nutrients and keep the toxins out so that we have enough sperm, the right shape, the right motility, meaning how they swim, and that that DNA is good, because if that DNA is not good, if that sperm fertilizes that egg, but the DNA is damaged, there's a much higher risk of miscarriage. And this is something that, you know, is not often accounted for, you know, if a woman is having multiple miscarriages, unfortunately, often the burden is put on her, when in fact, it could be sperm DNA damage, that's actually the issue. And we know, heavy metals are a terrible culprit in DNA damage, especially in sperm. And a lot of those endocrine disrupting chemicals like the phthalates,

the bisphenols, which disrupt the hormones which mimic estrogen which lower testosterone, which then also impact sperm. So we've got the plasticizers, we've got the heavy metals, mycotoxins can also play a role. Pesticides can also play a role, there's a lot of different mechanisms. But for men, you know, these heavy metals and things can also deplete some of these vital minerals that we need to have healthy hormones intact and to have healthy sperm. So some of these heavy metals deplete zinc, we need enough zinc for that sperm to make testosterone but also for that sperm there's a reaction at fertilization. It's the zinc Aqua zone reaction. So we need enough zinc for that sperm to actually penetrate the egg. And there's actually this beautiful burst of light when that happens. And it's like, you know, incredible experience, fertilization, life is created. And so we need enough zinc. And that can be depleted if we're dealing with heavy metals. The other issue for men, and we didn't used to think that this was really a man's issue, we used to think it was just women. So for women, we've known that generations impact us. So our grandmother, our mother was in our grandmother's womb, and we were an egg in our mother as a fetus in our grandmother's womb. So we knew that grandma's exposure affected the granddaughter, so if grandma smoked, we know that that increased the granddaughters risk of PCOS. And there's lots of other stuff that it can cause problems with too. But what we're also realizing is that with men, what they are exposed to, before conception, affects that baby's health for the rest of their life. So we're not necessarily changing genes, unless we're causing DNA damage with heavy metals, which is a thing. But a lot of these other toxins are altering gene expression, meaning they're already switches on the genes that get flipped on and

flipped off, it's more like a volume dial, you can turn up the volume or turn down the volume. And a lot of these toxins are turning up the volume on bad genes and turning down the volume on good genes, and those changes get passed down. And so dads have to detoxify, we got to get the plastics out, we got to get the fragrances out. Is AXE body spray even a thing anymore, I don't know. But that was just like a terrible thing for fertility for so long. And a lot of the men's products like the industry, I think, are starting to catch up. But there's so many toxic men's body products these days. But getting better. And so getting these things out of the body so that we can, not just have healthy sperm and actually make a baby, but so that you are setting up your legacy, so that you are setting up your child for health for the rest of their life. And I wish I could say that, you know, it's not that big of a deal. But honestly, everything that mom and dad eat, drink, breathe, touch, think and feel, three to four months before conception affects that child's health for the rest of their life. So no pressure. But it is a beautiful opportunity to truly like create your legacy.

Dr. Wendy Myers

Yeah, and then how does the toxin exposure to the egg and that sperm contribute to ADHD and behavioral issues in their children like years later years and years after conception?

Dr. Katherine Zagone, ND

Yeah, and that's through epigenetic mechanisms. So those toxins in mom and dad before conception, and in mom while she's pregnant, we know like, that's a very clear mechanism. But even before she's conceived, it's switching these genes on and off. And so some of these specific toxins like phthalates in dad, and also phthalates and BPA combined in dad before conception have been... like the research is crazy... baby boys specifically. So boys tend to be more affected by these things than baby girls, but boys at seven years old, had poorer cognitive function, and had more behavioral issues. And the behavioral issues were actually in the two to seven age range. That's what they measured. But it was statistically significant in the dads that had had these exposures preconception. And they're also delineating between, they're making sure the child is not having a current exposure, because we know that can cause issues. But that's like a very clear correlation and connection. Whereas they were able to say with some level of certainty that when dad was exposed, even if the baby was no longer exposed to these things. But it had affected the genes to a degree or this epigenetic mechanism, that cognitive function and behavior was significantly impacted in these boys and the sons. That's crazy to me. I mean, if we look at how many people have ADHD, if we look at the state of our mental health of our children these days, like, I mean, there's a lot in the world that could be causing it, but toxins are top of the

list, and not just what they're currently being exposed to what mom and dad and I just saw a recent study on PBDEs, which are the flame retardants and it increased the risk of anxiety in children. So preconception exposure, actually it was more prenatal exposure, but still, you know, what mom was exposed to while pregnant, so babies getting some of it, but there's also some epigenetics happening in that, that again, you know, it was my anxiety in my 20s because of, my mom eating McDonald's and being exposed to all sorts of toxins in food and plastics and in packaging and things, you know, when she was pregnant with me, who knows, I don't know if McDonald's was using toxins in those days, or if I'm gonna get in trouble for saying McDonald's.

We're calling everybody out here. Okay. Yeah, so and another thing that really concerns me is, you know, children being exposed to endocrine disrupting chemicals in utero, and all the health issues that can cause and maybe even changes in gender identity it changes in, I mean, if that child is developing, their body and brain is developing, and they've got too much stress hormones, or they've got way too much estrogen or too low testosterone, you know, that's going to affect a child and their brain and their personality.

100%. And we even see physical deformities from that, like, we're seeing changes in penis size, changes in testicle size, we're seeing penile deformities, where you can actually have the urethra on not the part of the penis where it's supposed to be. And a lot of these are related to BPA. It's a very well studied one. But other endocrine disrupting chemicals can have similar effects. We also know these things affect hormone receptors. So it can mimic levels of ... even if the testosterone level is not high or low, it can be sending a different signal to the brain, about what it should be feeling as far as testosterone, maybe more estrogen than testosterone, so to speak, maybe testosterone is low, but that the estrogen signaling can essentially go in either direction, depending on what's happening, what chemical, what's happening in the body. But I definitely think that a lot of the gender dysphoria is related to toxin exposures from birth, from preconception, but also current, because there's a lot of current exposures as well, and especially at very particular times in our development, both in utero, and then in that first few months and few years, that are really setting up the blueprint of our epigenetics and our hormone receptors and all that sort of thing.

Dr. Wendy Myers

Yeah, and I agree with you, I do agree that the toxins and heavy metals and chemicals that are impacting our hormones are having a huge impact on the gender identity issues that we're

seeing today. And so, I've never really talked about it on the show, because it's it's very, very controversial, but it's undeniable. It's the animal research out there on... animals being born with smaller testicles, smaller penis sizes, and the rates that have increased over the last few decades. It's very concerning, you know, and so let's talk about what we can do. So clearly women need to be thinking about pre pregnancy planning, and not just nutrition, but detoxification as well. And so let's talk about... logically we should start with testing. So what kind of testing do you do in your female or even male population that's looking to conceive?

Dr. Katherine Zagone, ND

Yes, on the toxin side of testing, I usually like to start with our the Clockwise fertility wise panel, which has our biological age marker, which is a marker of cellular health, and then has these top three fertility toxins, the BPA, the BPF, parabens and phthalates. Just because we have a ton of research knowing that those impact time to conception, egg quality and outcomes for that matter. And that can be done by anyone anywhere in the United States, quick dropship to the house. In my practice, I do a bit more extensive testing, so I'll run like a urine panel and look for pesticides, other plasticizers, mycotoxins for molds, heavy metal exposure, and start with just kind of like this broad spectrum, what are you currently being exposed to in the picture. And then if I have enough time with a couple, like if they're willing to put in a year of prep, which is ideal, not everybody wants to do that. But that's the ideal scenario, then we'll dive deeper into see what's stored in the tissues, specifically what heavy metals are being stored in the tissues. And this is important because when Mama gets pregnant, there can be some breakdown of her own tissues in order to supply the baby with the nutrients that the baby needs. So if there's lead being stored in the bone, and the baby needs calcium, and mom's not quite getting enough calcium, the body might be breaking down a little bit of bone to get calcium to the baby and some of that lead might be liberated, and that lead can then cause problems. So in an ideal world, now, I haven't seen and I don't think it's possible to get every single human 100% clean before they conceive. But we want to do the best we can with the time that we have, with the resources that we have and some of these are more dose dependent than others. So if I can, I'd like to do a provoked heavy metals test and really kind of like dive in and see what's being stored. And how much can we get out of the body safely in a more of like slow and steady manner, in order to make sure Mom is as healthy as possible, and therefore babies as healthy as possible. And then yeah, so I said the plastic plasticizers, pesticides, molds, mycotoxins and heavy metals, those are like the big toxin categories I test for. I also check micronutrient levels, I also check gut health, I also check hormone levels, pretty extensive testing in order to, you know, I mean, you're making a baby, this

is your legacy. This is maybe a once in a lifetime, or two or three time in a lifetime situation. And this child is going to be with you for the rest of their life and your life. So, it makes sense to put the time and energy and resources into preparing on all levels, to really set your child up for the best health possible.

TheHeavyMovie.Com

I'm really excited to announce my heavy Docu-series that's coming out on February 14, 2024. You can watch it at TheHeavyMovie.com. In this Docu-series, I interview over 100 experts on the topic of how heavy metals and environmental toxins are contributing to some of the most chronic health conditions of our time, including obesity, resistance, weight loss, fatigue, mitochondrial functioning, and even diabetes – the number one cause of diabetes is toxins.

Dr. Wendy Myers

Yes, yeah, it's so important. And doing all this testing gives you this wealth of information, not only for conception, but for your own health as well, to figure out why you have these symptoms, this fatigue and all the myriad number of symptoms that people could have when they're very toxic. And kind of help pinpoint what exposures that you're having, to eliminate them, identify and eliminate them. And then what about for the men? So do you do any preconception testing for men? And, and, you know, can we talk about that a little bit?

Dr. Katherine Zagone, ND

I do all the same testing for my men, like both parties are getting, you know, as extensive as possible on hormones, on inflammatory markers, on metabolic nutrients, toxins, like full blown equal.

Dr. Wendy Myers

Great. And then, what does detoxification look like? So after they get their testing, they pinpoint what they have, what kind of detox do you take men and women through and what kind of recommendations do you have for them to clean up their environment?

Dr. Katherine Zagone, ND

Yeah, step one is avoidance. So I like to describe, like if the body is a bucket, and we've got this toxic soup in it, and there's a little hole at the bottom. And that's how we're metabolizing and detoxifying toxins, the first step is to stop pouring more stuff in the bucket. And so I have like a

home checklist, we go through and we're looking at plastics, fragrances, cleaning products, body care products, air quality, water quality, every room of the house essentially, is it helping your fertility or hurting your fertility? Then also are there work exposures, are there environmental exposures outside of home and work that we need to worry about? Like, sometimes I have people who have hobbies that are full of toxic chemicals like detailing cars, or sometimes like making jewelry, where they're using a lot of different metal elements that are oftentimes contaminated with heavy metals. So other things that we need to think about. So the first step is to stop any current exposures. The second step is to support the body's own natural detoxification mechanisms as far as opening the routes of elimination, opening the drainage pathways, so that when we do start taking things from the tissue and from the cell into the bloodstream, that it can get out quickly and efficiently. So that means are they sweating properly and often enough? Are they pooping appropriately and often enough? Enough hydration, enough urination to support the elimination of toxins? Is the liver and gallbladder making enough bile in order to metabolize and get these fat soluble toxins from the bloodstream into the gut to then be bound by fiber in the stool to get it out of the body? Because if we don't get it out of the body, we're just kind of like recirculating things and most people feel worse. So avoidance is number one, opening up the pipes is number two. And then we can really start mobilizing things from the different storage areas and some places are harder to get stuff out of than others, you know, the brain is...it's hard to get mercury out of the brain. So that's usually, I often don't get to the brain with me at least, you know, we don't know where the mercury is coming from often, but where you know, how much is coming from which location. Somebody's gonna create a test for that one day, but, you know, essentially we do the best we can and so then we're using maybe some herbs, and maybe some heavier duty like grabbers or key lators or things like that. So like alpha lipoic acid is a little bit of a heavier duty, still a nutrient we're not using, you know, like an EDTA, necessarily, but there's some different things and depending on what metals we see, and depending on how well their routes of elimination or open and there's also some genetic factors with what are called like the CYP enzymes in the liver of detoxification, and oftentimes, some of these toxins can disrupt the detoxification pathways. So there's this balance of like, how do we open up these liver pathways to get this toxin out if it's, you know, slowing it down in the first place. So it can get very specific and nuanced. But everybody starts with avoidance. Everybody starts with opening up those routes of elimination, and then figuring out where we need to pull from, what we need to pull, and how we want to do that in a safe and gentle way so that we're not creating more inflammation, more brain fog, more issues in the body, because that can happen if we're just recirculating things.

Then let's talk about a lot of the reproductive health issues that so many women are dealing with today. Like you mentioned PCOS, and there's endometriosis and a lot of other roadblocks and diagnoses that really throw a wrench into conception. What role do toxins play in as an underlying root cause in PCOS, endometriosis and other health reproductive health issues?

It's definitely a factor in both and in all: endometriosis, and a lot of this is still evolving, like we're learning continuously. So endometriosis used to be thought of as just an estrogen dominance issue. And so toxins would play a role in that as there's a lot of estrogen mimicking toxins in the body that can be causing problems, even if their actual estrogen levels look fine. We also know now it's actually more of an autoimmune issue, and more of an inflammatory and immune modulation issue. And so we still want to handle estrogen dominance. We still want to keep out those endocrine disrupting estrogen mimicking chemicals, those Xenoestrogens, but all sorts of chemicals can cause autoimmune disease and through various mechanisms. And so we have to kind of do a deeper dive on the toxin piece. Is it more heavy metals for one person? Is it more mycotoxins for one person, is it more pesticides for one person that's causing their particular manifestation of endometriosis? And with PCOS I mentioned that there's a higher incidence of PCOS in women whose grandmother smoked. And it's not necessarily that we have those toxins still in our bodies, but they've switched genes on and off. So there's this history of toxin exposure that we have to learn how to reset that epigenetics or those those methyl markers, those switches on the DNA, which is one component, and we also have to handle current exposure, which something like BPA, we know increases your risk of insulin resistance. And insulin plays a huge role in PCOS and how it signals in the ovary it's also been called, like, diabetes of the ovary essentially. And so making sure we're eliminating some of these, you know, we call it an endocrine disrupting toxin, but part of that endocrine system is the pancreas which makes insulin, which is part of our hormone system essentially. And so we need to get those endocrine disrupting chemicals out as well. I haven't seen as much heavy metal just in with the testing that I've done in my patient base. I haven't seen as much heavy metal specifically playing into some of my PCOS cases, although theoretically, it absolutely could. I do see more of the plasticizers, the fragrances, stress plays a huge role for sure. And blood sugar balance is a huge component but there are toxins that impact your ability to manage your own blood sugar. So Food plays a role but it's also all these other signals that are coming into the body that you know when I told my first patient like 10 years ago not my like very first patient but 10 years ago I had a patient and he had you know diabetes and metabolic syndrome he's like but I eat perfectly and I exercise and I'm like well

let's look at toxins and he's BPA was through the roof and his big exposure was because he was getting a to-go coffee. And so it's in this, it's a paper cup but it's lined with plastic and then you have this plastic lid. And granted it's not a PCOS case but you know, diabetes is PCOS of ovaries essentially. So he's drinking a hot acidic liquid through a soft plastic lid, sitting in a plastic lined cup. Like, of course he has BPA through the roof because it's like he's taking a BP supplement essentially like The most leeching you could possibly have right into your system every morning, possibly every afternoon for him. So we forget that a lot of these are typical like metabolic syndrome, hormones... we're looking only specifically at that system but the toxins are affecting every system. And so if we don't include that toxin picture, we're actually doing our patients, we're doing them a disservice, because we're not looking for all the potential causes and toxins are a huge cause,

I loved all those dots you're connecting there, because it's so important for people to start planning for conception, doing detoxification leading out well before you're thinking about that, and people are paying attention to nutrition and starting to take supplements and things like that and planning for pregnancy. But a detoxification is such an important component, what is the window, where you like to see your patients start to detox before they even think about consumption?

Yeah, so the minimum timeframe is three to four months. But realistically, if we have a lot that we need to get out of the body, then we want to start about a year in advance, because it takes about three months from the time an egg and a sperm start to develop till when they're released to meet. And so the blood flow, the blood, that is bathing that egg, and that sperm for three months while they're developing plays a huge impact on whether they will be successful in fertilization and whether they will be successful in resulting in a baby. Which means we don't necessarily want to be detoxing a month before we're trying to get pregnant, because then we're mobilizing toxins from the tissues into the bloodstream and bathing those eggs and sperm in toxins, which we don't want to do. So I typically recommend we start a year out. We do really good testing to make sure that, you know, we know what we're dealing with as much as we can. And then we do our best to get as much out in the timeframe that we have. And then we make sure that we're not detoxing three months before we're trying to conceive, because we don't want any of those toxins flowing through the body. And at that point, usually, they've been avoiding enough toxins for a period of time that we've minimized any new burden. And we've gotten a significant amount out of them. And so oftentimes, conception happens easily, quickly, even if

they've been struggling for a long time. But oftentimes, I have to tell couples who've been trying for three years. Okay, we got it, we got to take a year off. And I know that sounds scary, because you think your biological clock is ticking. But your biological age is going to be much younger a year from now than if you were trying to get pregnant in the next two to three months, and I've seen this. Like when we test biological age and toxins are a huge component of biological age, the age of your cell, how old your DNA is saying you are not your birthday. And this is more important for conception and for a healthy baby than your chronological age to a point. I mean, menopause is a real thing, at some point, we've ticked but while the clock is ticking, you can actually use those ticks wisely and rewind the biological age, rewind that cellular age so that you are healthier a year from now, than you are in this moment, which gives you a better chance of a better outcome. And we see this in the research. So you know, even young, younger chronological women who have advanced biological age, because of toxins, because of stress, because of all these different factors, have poorer outcomes on egg freezing, IVF, etc. So they get fewer eggs, fewer viable embryos, fewer embryos in general, but fewer viable embryos and then results resulting in fewer live births. And so taking the time to get the toxins out takes the time... And nutrition is important, but it's not the only thing. And the proper nutrition can actually counteract the damage of some of these toxins like the right amount of folate in the right form of folate and EGCG from Green Tea, these two things have been shown to counteract some of the damage from some of these toxins. So again, nutrition is important. But if we're not handling the cause, and getting these toxins out of the body, we're not going to see that good of a result. And what I've seen in practice is that we have an average of a four year age reversal and anywhere from three months to a year, which is a significant difference when your cells think... so if you have a 40 year old woman, and her cells think she's 36. That's different than if her cells think she's 40 or 44. And so testing, I think it's so important to test biological age as early as possible. So you do have time to rewind the clock and to see what toxins are there so you have time to get them out so that you can have a healthy baby on your timeline. And in that case, time is on your side. If you take the time and use those ticks wisely to do the right things, and actually, you will get a better outcome.

Dr. Wendy Myers

So for the women that have been trying, for the couples that have been trying for quite some time doing IVF, maybe they're advancing in age, give them some hope as to what they can do, especially if they've just been going to their conventional medical doctor, the conventional fertility

clinic, what is all the other things that they can do? And what are the kind of results you're seeing with your patients?

Dr. Katherine Zagone, ND

So results wise, I would say I have the best success with my 35 to 40 age range. And I've got over an 80% success rate with that age range specifically. It does seem to be a little harder over 40. But again, I don't think it's the age because I've seen women conceive naturally at 46-47. Sometimes, who were trying, sometimes who weren't, to be quite honest. So there is a whole, you have an entire life of health that has either been helping you or hurting you up to that point. So the healthier you've lived your entire life, the potentially longer you'll be fertile. But we can do a lot to rewind the clock. And so I've seen that age reversal in the labs. But I've also seen a lot of really incredible success stories. So my favorite story is, I had a woman come to me at 42, she and her husband had done a failed round of IVF at 36 failed rounds of IVF at 40. She came to me at 42 and had started already making changes but had significantly changed nutrition and toxins and a lot in her life, stress, all sorts of things. And so after working together for a few months, they were like, Okay, we're gonna do one last round of IVF. And they got nine great embryos. So if it was just about age, I shouldn't have been able to get her any better results than at 40, or definitely not at 36. But they had pretty incredible results. And it's because of the work that they put in and taking the time to actually do all of those things, to get rid of the toxins. She also did a lot of fasting, which rewinds the cellular age, biological age, so it's definitely possible. And I've had other similar stories, they're probably the most dramatic and most miraculous, but I've had lots of couples who've had three or four failed rounds of IVF. And were able to conceive naturally, who had been trying for three years or more. And were able to conceive naturally, or eventually did end up using IVF. But it worked instead of the four times before where it didn't. So there's a lot of hope, so much hope. And it's unfortunate, because in the conventional world, they'll tell you depending on your age, okay, well go try for six months or go try for a year, and then we'll do some testing, when you are actually losing time on your clock. If you're just not changing anything and doing the same thing you've been doing for the next six months to a year, you're in a worse situation. When if you actually think ahead, start ahead, start preventatively and think, Okay, well, I want babies in a year or two years, you actually have this time to improve your chances of success, even if you are a little bit older, let's say. And so there's so much hope. There is a paradigm shift from that conventional world. But so much is possible with what we know in the functional medicine world. And it's not like I'm that special. Like I have colleagues who also have really great success rates in the functional medicine world for fertility, who have as a collective, we have lots of patients in

their 40s, conceiving naturally, or finally having success with IVF, you know, even if it's 10 years after they started trying. So there is so much hope when you find the right approach, and when you start as early as possible.

Dr. Wendy Myers

And what kind of diet is ideal before conception. So I know there's a lot of popularity in the vegetarian diet and even the vegan diet now. I mean, in particular, do you find that the vegan diet is conducive to conceiving a child?

Dr. Katherine Zagone, ND

I would say there's some individuality. But I would say as a whole, more of my couples do better on some animal protein, and specifically incorporating some organ meats, whether that's through a supplement or through foods. They're very nutrient dense. But I also have couples who've done, you know, really well on the vegetarian/vegan side of things. So I think there's some individuality, the thing I think across the board is that quality matters the most. And some people need a little more animal protein and some people need less animal protein because it creates inflammation for them. And how do we determine this? Some of it is how you feel when you eat these things. Some of it is what your labs look like. There's different fatty acid ratios that we can look at if someone is eating too much meat and their arachidonic acid is really high, okay, maybe you need to be more on the vegetarian side of things. Or if someone's really iron deficient and B 12 deficient and we're supplementing, and they're taking all these pills, maybe you need to eat a little bit of meat. And, you know, zinc, are our best, you know, mineral sources, oftentimes our, you know, organs, animals, shellfish, like, you know, oysters for zinc are like the quintessential source. So I think it's individualized, there is some nuance, but more of my patients tend to do better with some animal protein.

Dr. Wendy Myers

And then let's talk about hormones, because they're so there's so many different toxins that negatively impact our hormones, reduction of hormone production, imbalance of hormones. Can you talk a little bit about that, and the toxins that impact our hormones?

Dr. Katherine Zagone, ND

For fertility, specifically, men need to have really good testosterone levels in order to help make good sperm. As women, we need good estrogen in order to trigger ovulation and we need good

progesterone to help maintain that pregnancy and that uterine lining. We also need good testosterone to have enough of a libido to actually want to make a baby in the first place. And what we see with a lot of these toxins so they can disrupt in a few different places. So they can create inflammation through reactive oxygen species or oxidative stress that I describe kind of acts like a fog within the body so that the signal doesn't get through clearly, they can also bind to the hormone receptor. And that can either signal it too much, or it can block it from signaling at all. But it's basically impacting what our body is trying to make hormone wise, our cells can't hear it. So we're not getting the intended action. And this can cause oftentimes, we see a lot of too high estrogen. And that can be because toxins are signaling that there's more estrogen in the system. But we also know that toxins impact metabolism or how we break down these hormones. And so a lot of times a toxin load and again, I'm speaking generally first can impact how your liver can break down your own estrogen, and what pathways it can go down because some estrogen metabolism pathways are more ideal, and some are much less ideal and can increase cancer risk and things like that. So these toxins can impact and they can also impact production so they can impact production, they can impact signaling. And they can impact metabolism, which can kind of throw the reproductive system off in all sorts of directions and can cause all sorts of symptoms. I would say the most common issue I see is probably low progesterone, and part of this is toxin related, part of it is nutrient related, part of it is stress related. With men with low testosterone. There's almost always a toxin component. The endocrine disrupting chemicals, a lot of the plastics and fragrances play a huge role in low testosterone like BPA. We know that it lowers testosterone, phthalates as well. And so the toxins also then deplete the nutrients that we need to make healthy hormones. So, especially with metals, which can affect how much zinc we have, we need zinc to make testosterone, we need zinc to help trigger ovulation to make progesterone. And so there's just multiple pathways that these toxins can impact the hormones themselves but also how we feel because I've even seen like a lot of times when I see patients who have good hormone levels or or who we put on some sort of hormone replacement...So I've had a few patients who we've done some just bioidentical progesterone because they weren't quite making enough on their own, and they had what I would call a paradoxical reaction, meaning they should feel really good on this. And they feel awful. And so for progesterone, specifically, women on bioidentical progesterone should sleep really well, and should be very relaxed. It helps to get rid of anxiety. It's very just like a happy, sleepy, relaxed hormone. And I've had a few patients where we do this bioidentical progesterone, and they have insomnia and anxiety. And it's like, why? There's something that's altering the signal in the body. And oftentimes, it's metal, sometimes mold, sometimes other things, but yeah, I feel like I'm kind of rambling a little bit now.

Dr. Wendy Myers

No, no, but I think that's great. You're talking about how toxins are impacting our hormonal pathways. And you had mentioned at some point we were talking before you said that this is so mind blowing that some women go on hormone replacement therapy, and they don't feel well on it. It just it's not working for them for whatever reason, they try to adjust the levels they still just feel weird. And it can be from toxins. It can be from the pathways being blocked or the conversions not working right, the toxins block the conversion of hormone, one hormone to another, DHEA pathways can be impacted. Just lots of different things come into play when it comes to toxins impacting our hormones.

Dr. Katherine Zagone, ND

Yeah. Oh, and the conversion piece as well. So like, especially in men, there are a number of toxins, whether it's PCBs, pesticides, different things that we know increase that conversion of testosterone into estrogen. And there's a lot of men who go on like estrogen blockers. And really, it's, it's chemical exposure.

Dr. Wendy Myers

I went on hormone replacement therapy, I started about six months ago, I just could not be happier. I tested my testosterone levels, it was like, two. I'm in Mexico. So it's a little bit different. I think I was 20. I forget the exact numbers, but it's a little bit different measurement in Mexico. But yeah, it was really, really low when men can be between 500 & 900. And women are supposed to be doing like one to 150 or something like that. I was 20. It was like, nothing, it was just like, you know, crickets down there. So I think it's, for me, I'm so happy that I started, I started with testosterone to check it out. I was like, Oh, this is awesome. And also, then from there, I decided to do the estrogen and progesterone and I feel so much better. Just I can't even tell you because you know, women have low estrogen, they get brain fog and forgetful. And not to mention the bone protective benefits of estrogen, which is very important to me. And and I just don't believe that, you know, a lot of, you know, a lot of women are thinking, "I just want to age naturally, I just don't want..." you know, but I think that just because our organs stopped production of say, our adrenals and our ovaries stop production of hormones, because they've been just biologically worn out. Or it's a genetic time clock, that doesn't mean that you have to live in that state. That doesn't mean that you have to live from 50 to 80 with zero libido or desire to participate in your relationship, it doesn't mean that you have to live with being totally forgetful or all the other kinds

of negative side effects of having low or imbalanced hormones. And they're safe! The hormone replacement therapy is safe and what so many women are concerned about as far as hormone replacement. And you know, there was one study that showed that it caused cancer and this long term study, that study was retracted. So that study that so many women have a hole in the back of their mind that hormone replacement therapy can cause cancer is harmful... No, that study was retracted. It's not harmful.

Dr. Katherine Zagone, ND

Agreed. Yeah. And it matters, what kind of hormones you're using and that they're done appropriately with the right, you know, you've got your progesterone with your estrogen and everything. But yeah, safety has been proven time and time again now with that, and so yeah, utilize all the tools and feel amazing. One more thought that relates back to toxins and testosterone specifically is that one, one marker I see in the blood a lot that comes back high is sex hormone binding globulin. And so I don't know if this was tested for you, or if your free testosterone was tested, but both for men and women, even if their total testosterone levels look fine. Oftentimes, they see this sex hormone binding globulin or s hB_g, quite high. And that's binding up all their hormones. And one of the reasons this can be high is from high levels of endocrine disrupting chemicals, because the body sees this as high hormones, we have to bind it up. So it doesn't have more of an action than we want it to have. But then that s hB_g then starts binding all your own hormones. And that can make you feel like you have no hormones, when you actually have great levels or high levels, but you feel like you have none because it's all bound up because the toxins have distracted your system and told it that it needs to make more of this molecule. So it doesn't sound like that was the case for you. But I do see that in the world and in my patient base.

Dr. Wendy Myers

Yeah, really interesting and so is the solution just detoxification or are there any antagonists that you can take for the sex binding issues?

Dr. Katherine Zagone, ND

So the two things I've seen are effective, so obviously we want to treat the cause and toxins can make the SH BG go up and, and stress can as well. But the two things I've seen to be effective are boron to lower that sh BG, like six to 10 milligrams a day. And for some patients ashwagandha works and for other patients tongkat ali works really well, at about like 1000 milligrams a day to

help kind of free up more of that free testosterone. And then there's other herbs and things too. And oftentimes I'm using blends. But yeah, there are tools to help lower that aside from just handling the toxins.

Dr. Wendy Myers

That's why boron is in my Ageless AF supplement. A lot of added benefits there. Yes. And so, what kind of results do you see with people going on hormone replacement therapy? Do you recommend that for people and anti aging, like what kind of anti aging benefits do people have?

Dr. Katherine Zagone, ND

We definitely see kind of like you mentioned with the estrogen, its brain protective, bone protective, heart protective. You know, we didn't realize how many places we have estrogen receptors. So we can essentially when we have levels, maybe we don't want to get her estrogen when we are 20. But if we can maintain high enough estrogen levels to activate the receptor, those receptors in the brain, we have better memory, or we maintain our memory, better focus better cognitive function over all, we know that, progesterone, super helpful for sleep, sleep is one of the top things we need to do to be able to stay young in and reverse age. Because in our deep sleep is where we make growth hormones. And so progesterone is super important for getting us into that good healthy sleep. So that we can repair, recover, heal, but then also make more of our own anti-aging hormones. And testosterone. You know, tissue protection is also great for body composition, great for energy. I often, you know, we'll use it, you know, if I can't use estrogen in somebody, oftentimes, you know, testosterone can do some of that job, as far as bone protection. But, you know, libido is...I have a doctor colleague who likes to say that libido is one of the vital signs. And I agree, like, I think it totally is and should be because, you know, this is your vitality. This is like a beautiful part of life. And so testosterone for women is really, really great for supporting that. And along that same sexual function line, having enough estrogen, whether it's localized or systemically supports, you know, lubrication. And so if you've got a lot of libido, but you don't have the lubrication, you can have some problems. So you gotta make sure that you have, you know, the right balance of all the hormones on board so that you can enjoy a nice, healthy life, including sex life for many years to come.

Dr. Wendy Myers

Yes, yeah. And men are also so important, to get tested for testosterone levels. I think a lot of men are maybe not really thinking about this. But there's so many estrogenic chemicals, so many

things working against our testosterone levels. And it's in that barometer, the morning erection, if you're having an issue there, or you're just having trouble with building muscle in the gym, or you don't have that libido that you used to, you know, may want to go check their testosterone levels make a big, big difference in the quality of your life and your sex life as well.

Dr. Katherine Zagone, ND

And mental health. I've seen so many patients who were like, their chief concern is depression and apathy, like they just are like they just don't want to do anything. Like they have no motivation to do anything. And I've also had some patients that are a little more on the depressive side, but also a little ADHD, which I'm not saying testosterone is specific to ADHD. But it's amazing when they get the right hormone balance in the body, how well the brain performs. And for men, like a lot of men lose that ambition, motivation, that drive for life, and testosterone is the hormone for that. And what I also find interesting, and also kind of bringing in toxins is some men, the low testosterone can come from a few different areas. So is the body making enough raw ingredients? Is there enough DHEA? Is the brain signaling the testes properly? And are the testes produced properly? And what I see more often than not, is that the brain is not signaling properly. I've seen so many men of all sorts of ages come back with testosterone in the two hundreds. And the LH which is the signal from the pituitary to the testes, telling the testes to make testosterone is normal or low normal, when the brain should be screaming at the testes to make more testosterone, but it's not. So the first question I ask is, do you have any history of head injury because we know that concussion can cause that, but the other thing that's often not addressed is heavy metals or toxicity that's disrupting that communication between the brain and the testes. And sometimes it is a testicular issue. Sometimes the brain is screaming at the testes and the testes are just not producing and then we have to figure out why or we just use testosterone replacement because we're not going to get that back in a 65 year old man, or sometimes even a 45 year old man. But it's really interesting to see how much the body can recover on its own. And sometimes it's enough that you don't need the testosterone replacement. And sometimes, you know, age wins, and you do need that testosterone replacement. But you feel amazing enough on it, that you're fine being on it.

Dr. Wendy Myers

Yeah, guys, go out there and get your hormones tested, women get your hormones tested. I wish I had gotten my hormones tested when I was, say, 45. I'm 51 now, but I wish I had started in those pair of menopausal years leading up to menopause because I feel like I just would have had a

much better quality of life if I had started testing earlier. I think life long I've been super, super low in testosterone, always had trouble, you know, maintaining muscles, always had like a low libido. And it's just always been really frustrating. And it was just low testosterone. That's all. That's all it was. And it's a very easy fix as well. So, Katherine, why don't you tell us a little bit more about your practice, how we can work with you. Can they do telemedicine? And you know, what is your website?

Dr. Katherine Zagone, ND

Yeah, so for standard patient care, I work through 10x Health, 10x Health System, we have an office in Beverly Hills, a beautiful clinic, and I can see patients virtually, so that's fantastic. And then also for fertility, specifically clockwiZe with a Z, because I'm Dr. Z. We do have at home testing where you can literally order your kit. It comes right to the house, you do your little finger prick, and it tells you your biological age, your read of aging. So how fast your cells are aging at that moment. And your top fertility toxin exposure is currently a great place to start on the fertility side of things and then for actual patient care 10x health.

Dr. Wendy Myers

Well, everyone, you heard it from the expert, about fertility options and hormone replacement options as well or why the argument for hormone replacement, so many different toxins affecting conception and our hormones. So thanks for tuning in. I'm Dr. Wendy Myers. You can learn more about me at Myersdetox.com, join my newsletter. You could also take my heavy metals quiz at heavymetalsquiz.com. And you'll get a free video series after taking that quiz on all your frequently asked questions about toxins and how to detox as well. So thanks for tuning in every week. I love bringing experts from around the world to help you kind of figure out that missing piece of your puzzle and your health wherever, wherever you may be lacking in trying to reach your health goals because you deserve to feel good and I'm just so honored to help you do that every week. Thanks for tuning in.

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