Introduction and Dr. Kamperveenu2019s Background

Hi everyone. Welcome to this episode of the Reversing Type 2 Diabetes Summit 2.0. It is my distinct privilege to interview Dr. Cleopatra Kamperveen, a total badass and expert in all things to do with fertility and abundance and living your right life.

And for those of you who make the assumption that fertility has no overlap whatsoever with diabetes, you are going to need to listen and play close attention because these things can affect people and start earlier in life and show up later or happen.

Right now there's a lot of younger people in their twenties, thirties and forties within their fertility window who have Type 2 diabetes. All right, Dr.

Kamperveen, welcome to our summit. I'm so happy to be here with you. Dr. Beverly Thank you for having me. Oh, I'm thrilled. Thrilled to interview you.

Say, would you just give us a little overview of your amazing background? Absolutely. I am a fertility and pregnancy and intergenerational health scientist, and I have 27 years of experience already.

More than half of my life. I went into a pregnancy laboratory at 18 years and two months old and never looked back. I became the first woman of color in history on the tenure track at the University of Southern California Davis School.

I have had almost $3 million in funding for my research from multiple arms of the National Institutes of Health, the National Science Foundation, and others of the world's most prestigious funding agencies.

I've published dozens of scientific studies, and I've been cited in over 2000 scientific studies in just the past five years alone. And so I can tell you from firsthand experience, both in the scientific and empirical world and in the application and practice just how closely related diabetes and fertility are to one another.

Just like you are saying, it's incredible that we don't get taught this anywhere else in our lives. So I'm really excited to get to talk to you about this today.

We're looking forward very much to this. So one of the things I want to make sure that people heard in terms of your expertise was the concept of intergenerational health.

We will come back to that because that can be the creek and the river and the ocean that runs through a family's history or maybe an individual's experience.

But just to understand that this can have long term consequences through generations. So if we have a better idea of blood sugar, control of glycemic control, everybody's better off, right?

That's so true. And Dr. Beverly, should I call you Dr. Beverly or Dr. Yates? Is that okay? I call you that in the outside world, but I wasn't sure if that was the right term here.

So I think that it's really important that we understand that that what we are doing for our own health is truly meaningful and motivation enough. But sometimes and I think, especially as women, when we know that what we're doing has a direct impact on other people and the people we love most and the people we know we will love most when they they come to exist, they come Earth side.

That's even more motivating for us because we want to be great for ourselves, but we will be great for the the

children we have, the grandchildren we have and the people we love the most.

Absolutely. Absolutely. So please, would you, Dr. Cleopatra, walk us through what happened specifically with blood sugar that can go well and what can go wrong when it comes to fertility?

Because I want to be sure people understand. I don't want them to make assumptions about, you know, circulation or oh, it's okay or, you know, that kind of thing.

So please lead us in this path Absolutely. So, first of all, I want to introduce the concept of type F diabetes, F as in fertility.

Intergenerational Health and Fertility Basics

And what I mean by type F diabetes is that there is this constellation of symptoms that are brewing that start to appear in the second decade, second and third decades of life that directly impact our reproductive potential, that go on to persist and worsen and can become type 2 diabetes in the fourth decade of life.

Type 3 diabetes, around the sixth decade of life, which is dementia. And so you might think, what do these things have to do with one another? But actually they are so intimately tied to one another and the same set of symptoms that result in Type 2 and Type 3 diabetes are already at work earlier in life, causing the reproductive system to age prematurely.

And remember, the reproductive system is the first system to age. So it's not surprising that the first place, the impact of those symptoms and underlying root causes is showing are showing up is in the reproductive system.

And why this is so important is it's easy to think I'm young. I have I have a my body has all the flexibility. It'll do what it's supposed to do. And I don't have to worry about blood sugar and insulin until I get a little bit older.

And actually, we know that's not the case at all. And in the first place, it can show up as in the reproductive system. And here's a very concrete example of this polycystic ovarian syndrome, which is correct, arised by problems regulating blood sugar, with difficulties with glycemic control, with difficulties with insulin, resist genes.

And this is where we're seeing polycystic ovarian syndrome in teenagers in young adulthood. And we know that PCOS is affecting up to 20% of the population, the female population during the reproductive years, and it's one of the leading causes of infertility.

We actually don't use the word infertility at the Fertility and Pregnancy Institute for a very specific reason. So I'm going to say infertility and put that in quotes.

But not only is it a leading cause of infertility, but it also can cause complications during pregnancy and difficulties with blood sugar regulation in the Prime Minister, which is the period of time leading up to conception and during pregnancy.

You also program the developing baby to have potential health problems as well. So there's a concept of fetal origins of adult health and disease. And this is another way of saying the intergenerational transmission of health.

But I want people to really hear what I'm about to say. The health and longevity and including the fertility that our children and our grandchildren and have are programed by us when they are in utero and before they are even conceived in the Primester through the quality of the raw material that go in to me, the raw materials that go into making them the egg, the sperm.

And we need to understand that this is a huge factor in the diabetes epidemic. We're seeing the obesity epidemic. We're seeing the autism epidemic. We're seeing the for the first time in history, we're seeing a life expectancy in one generation being lower than in a previous generation.

These things have been set in motion decades ago, and they will continue and they will continue to worsen unless we intercept those processes. Bravo brilliantly said.

It's absolutely true. I agree with you. The science supports it and people who have experienced it. You know, I feel like we're all living in the midst of a time where we have a massive experiment undergoing with human health.

And the outcome of this experiment really isn't known. We've changed so many things, whether it's the quality of food we eat, the additives and the processes, the herbicides, the pesticides, the environmental toxicity, water compromised, air compromised on and on, and then social and emotional isolation.

And on top of that, most people are struggling. It's shocking to me that people are struggling with blood sugar. It's just it's just it's just bizarre.

And it's not and it's not just people who are diagnosed with diabetes or pre-diabetes or PCOS. It's not just people who have difficulties managing their weight.

I think that for all of us, one of the most eye opening things that we can do is wear a continuous glucose monitor because when we do, we get shocking information about the fact exactly about the fact that our we are not metabolically as flat, as flexible as we'd like to be and as as we we thought we were.

And that starts, you know, early in life and it's starting earlier and earlier in life. And then you add hormonal changes that come with different age groups that just exacerbate the body's difficulty creating that metabolic flexibility.

And you have a really challenging situation on your hands. So I agree.

Blood Sugar, PCOS, and Fertility Myths

And all of the things you said, the the kinds of stressors that we face today are so different from the types of stressors that we, our brain and our bodies, our brains and bodies were created to be able to cope with.

You know, I, I heard this this saying the other day, which I thought was so incredibly important, and it was that, you know, we human animals are such a peculiar species is that every other animal on the planet has just one problem how to fill their belly.

And when it comes to us, this incredibly evolved species, either we have the one problem of how to fill our belly, and if we have that problem, it's the only problem because it's the only thing we can think about.

But if our bellies are full and we don't have that problem, we have a million other problems. We have a million other things to worry about. And it really does in this very simplistic but but eye opening way.

Describe the human experience. Yeah, definitely. It's interesting. I think real time people who have value to add will need to find their courage excuse me and their words, to be able to express what the threat is.

And people need to be willing to hear and take action while they still can. Otherwise, it's going to be, you know, too little, too late. And not to paint a doom and gloom picture because, you know, I think it's very much an example of the glass is half full, but you can't just watch about something or read.

You got to get going, you know, and take care of yourself. You you and I are both fans of tests on gas and I love that you talked about CGM, you know, glucose monitors, right?

Because when people have a CGM and they're wearing it and using it or a glucometer and test strips, you know, whatever people test, don't just get that data.

Find out what's going on with your blood sugar. And if you know anyone who's struggling with the idea of data

information or not testing, you know, feel feel free to share this episode because we're going to talk about the ways in which these things come together so that people can use it and feel empowered, not discouraged, to feel lifted up and supported and to have clarity about what they're doing.

That's helping their blood sugar and what is harming it. Yes. So so with that in mind, let us make this Segway then to what are the top, say, three myths or misunderstandings that you see that people have about the connection between blood sugar and fertility?

Well, I think the number one thing when it comes to blood sugar and fertility is that people think that if someone is overweight, they're more likely to have that problem.

And if someone is not, is has regular BMI or is underweight, that that that you don't even need to check them for PCOS or you don't need to check them for issues with blood sugar stability and that that is not true and the data show that that there are that there are women who are under weight or of average BMI who also are have PCOS, who also have problems with blood sugar.

So I think that's that's probably the number one misconception, almost a stereotypical perception of what blood sugar control challenges look like and how what that looks like in relation to fertility.

So I think it's it's a stereotype that's perpetuated both out in the world and also in the health care space, because it's very easy for a doctor to look at someone and say, well, you know, they're above normal weight, so I don't need I don't need to check them for that or I doubt they have PCOS because they look this way and you could be overlooking some critical information.

So I think that's number one. I would say that another misconception surrounding fertility is that age is the only thing that we need to pay attention to and I we this is such a loaded topic, but what I will say is that age is the number one predictor of fertility, and we cannot ignore that it is a critical predictor of fertility.

And yet what is most important for people listening to understand is that there are two types of age we should be talking about. Yes, you know what I'm about to say?

One is our chronological age, and that's the only one that's being looked at when you go to an IVF clinic and they decide that you're too old to be a candidate for IVF because they're looking at your date of birth and how old you are in years.

But here's the other an even more critical indicator of age, which is your biological epigenetic age. And this is where we have all of the leverage. We have all of the power.

And by the way, this is so important for fertility, but it's also so important for blood sugar. If someone has been diagnosed with diabetes or they're just trying to get a better handle on their blood sugar.

So what's really important to know is that you can be biologically younger than your chronological age. And if you are somebody who wants to have a child later than average later than most people do, then that's going to be the place to focus.

How can I be as biologically youthful as humanly possible? And by the way, the reverse is true. You can be biologically older than your chronological age.

And that's exactly what's happening right when when we talk about all the the epidemics we were just talking about and the decline in life expectancy, that's exactly what's happening that all of these unique stressors that are part of this experiment that you mentioned, Dr.

Beverly, are our bodies and brains are not equipped to deal with them because they've never seen them before. This is the first time in evolutionary history that we're experiencing this, and it's accelerated accelerating the biological aging process.

So our power is in our ability to slow that biological aging process as much as possible. And one of the things that we're seeing happening with fertility is tremendous declines in fertility.

Every single year, the rates of miscarriage are increasing, rates of premature ovarian diminished, ovarian reserve are increasing, meaning you. This is an indicator of how many eggs someone has left or how far out they are from menopause.

And we know that that's because this accelerated aging is happening. And also fertility challenges are growing among younger age groups even more rapidly than among older age groups, which shows you again that this accelerated biological aging is happening.

So, yes, age is important, but don't forget the power of your biological age. That's what I want to say for the second one. And the third one is that everybody's concerned about their egg quality.

Every everybody who's who's a person with ovaries is concerned about their egg quality, especially as they're getting older. And that's that's actually very relevant to blood sugar, because we know that blood sugar spikes act like an assault on the eggs and cause premature aging of the eggs.

Sperm Health, Placenta, and Pregnancy Loss

So we really, really want to focus on stabilizing blood sugar, stabilizing and increasing our insulin sensitivity in order to promote the quality of our eggs and possibly also the quantity of our eggs.

And that becomes even more important when we enter our thirties and forties. But it's already important in our twenties. Okay, so then now could you talk to us, Dr.

Cleopatra, about what goes on for sperm with issues with blood sugar? Because I think often at least has been my experience and I'm a mom, just like your mom, the conversation tends to be weighted pretty heavily when it comes to fertility and reproductive concerns on the female side of things.

What happens for the folks who have testicles, testes and sperm production? What goes on for them with diabetes? I'm so glad you asked this question because the person with the sperm is providing at least 50% of the equation and in some cases more than 50%, which might shock people.

And I'll give you a specific example of that. But we know that nutrition, that blood sugar, that the same kinds of factors that can act as assaults on eggs on our eggs act in the same way when it comes to sperm and that premature biological aging that accelerated biological aging that we are seeing in female populations is also happening in males.

And it actually looks like it's happening at an even faster rate in males. So let me tell you what we're seeing. It's really, really eye opening. What we're seeing is that in the last four decades alone, there has been a more than 50% decline in the average sperm count.

Now, this is in the general population. This is not in an infertile or sub fertile population. Now, I want to be really nuanced about this conversation because I think it's critical to be nuanced.

And even with that drastic decline in sperm count, sperm counts are still within normal ranges. But what's alarming is if that rate of decline continues, they will rapidly not be within normal ranges.

And this, again, is on account of this experiment that you talked about. The changing circumstances of our lives. What I call this is the mismatch between our reproductive biology and the modern world in which it is trying to function.

So our reproductive biology is still acting as though it's living in the world that our our cave man and woman ancestors lived in. And yet here we are in the modern world, which has drastic differences as in terms of light

pollution, sound pollution, air pollution, water pollution, food pollution, as you said, social isolation, the chronic stressors that people are dealing with on a daily basis.

I even think that if we could go back and assess the difference in thought patterns, we would find that our minds today are so much more stressful than they were, and all of these stressors are really hard on blood sugar.

It is very hard. You can you can have a beautiful diet. And I always say it's so much easier to clean up your food than it is to clean up your thoughts.

And I have I've actually been part of research studies where where we've seen that even with a great diet stress and lack of sleep. Dysregulated your blood sugar, that happens day after day, year after year.

And and here you are in a situation where your fertility is compromised, your cardio metabolic health is compromised, your brain health is compromised, your central nervous system as a whole is compromised.

And so it's just we have we it is really important to know that this is in fertility is not just a conversation about people with ovaries or women. And maybe we should have said that in the beginning of this session, because it's so critical.

But I want to I want to tell you one critical way in which the sperm is more than 50% of the equation because people don't know this. We have only recently learned that the sperm epigenetically program, the health and function of the placenta, we have always thought that the placenta had to do only with mama and with baby.

The health of the placenta was either a reflection of the health of mama, the health of baby, or the health of the pregnancy. Now that we know that the sperm epigenetically programed the health and function of the placenta, this is one of the most powerful pathways.

It is the source of life in utero. It is a fountain of youth. If we can preserve aspects of it. And it this same study found that up to 19% of stillbirths, miscarriages and atopic pregnancies are attributable to the father's epi genetic impact on the placenta.

And the the impact was in men particularly who had health problems prior leading up to conception and very common health problems diabetes, hypertension or high blood pressure, depression, obesity.

So again, this is such a profound impact of the the dad or the person providing sperm that most people don't know about. We don't talk about. And I really, you know, having done this work for 27 and a half years at this point, having served thousands of families who have come to us after pregnancy loss, it is almost always the mom who feels responsible for the loss.

And she, even though she knows it's not her fault logic leads. She can't help but go over and over and over. What could she have done? What did she do wrong?

Maybe she ate something wrong. Maybe she moved the wrong way. What did she do? And now it turns out that a large percentage of these losses are actually attributable to the dad.

That is revolutionary to hear. Wow. I've always thought that, you know, I never thought Mother Nature would put something together where it was so heavily weighted in one direction.

And now you're confirming that suspicion? Yes. Yes. And that's just the function of the placenta. We didn't even talk about abnormal lady, which, by the way, abnormalities in the sperm in the egg are created by problems with blood sugar.

And 60% or more of miscarriages are the result of an underlying root cause of abnormality which either originated in the egg or originated in the sperm, or originated in how they combined with one another.

And so that category of losses that we just talked about that are attributable to the placenta are a tiny percentage of the losses in comparison to the losses that are created by abnormality, of which the the person providing sperm contributes to at least 50% of the time.

That's really important to know. I think as we think about human health and intergenerational health and for people who are in their reproductive window and looking to have children or people for whom back something in the past, they can't do anything about it, I think going forward, educating the coming generations, you know, the younger folks about this is critical, is sometimes that message.

Frankly, it's better if it comes from the people who are older, who've lived it, who've experienced it, and who maybe understand the bigger picture, you know, the impacts and realizing, hey, you can do something about this.

It isn't too late yet, right? And then going forward, when we think about intergenerational health, I would love to get your thoughts before we wrap up our interview about the social habits that go along.

Intergenerational Habits, Aging, and Final Takeaways

You know, like before, I'll give you a brief story for myself. I got away with having kids later in life. I was pregnant at ages 38 and 40 and had children 3941.

I was in the shape of my life. Right? So despite having so many people with diabetes on my father's side, my father was one of 13 siblings. They all had some kind of like type of diabetes, type one, Type 2 pre-diabetes just all over the place, right?

Yeah, that's a heck of a genetic combo. Yes. Yes. And in that, you know, being able to have kids as an older woman, I was aware eventually of just how much age is a conversation with egg and sperm.

I didn't know what you just heard about the placenta and the sperms contribution to this, the integrity, the strength, the vibrancy of that organ that, you know, the pregnant mother makes that placenta.

Right. That's incredible. So then my kids were about 5 to 3 when my mom moved out here to California to join us, which was such a blessing. I just I'm just so fortunate.

I was delighted to have her here. I knew, though, she was going to bring her candies. Yes, right. Yeah, it would be a treat. She's going to give the grandkids a yes.

I really had to have that heart to heart around Mom, I love you, but please, Grandma, don't run amuck with the sugar and the sweets, because. Yes, I know about you know, you set your children's preference for what they eat.

Young. Yeah. And if you get used to sweets, it's going to be a struggle when you're older. I would love to know what your thoughts are. The intergenerational aspect that is so social, you know? Yes.

Yeah. So it's really interesting because the study found that what we eat when we're pregnant really programs that the taste preferences of our our children and I'm so I'm so proud of my super babies taste preferences.

You know it's I mean they're they're each different all three of them but they're they're wonderful. One of them is like complete carnivore and has, like, enormous muscles.

And another one is more, you know, he's more oriented toward plans. But, you know, he also has enormous I mean, they just my daughter has her own combination.

And I think that's really wonderful. So first, knowing it's not just in childhood, but actually starts before then in utero and then the prime minister.

Right. That time leading up to conception is what I mean by that trimester. We want to be thinking about 120 days

out of setting up all the right habits, that right epigenetic foundation, not only so that we have our best fertility, our best eggs, our best sperm, but also so that we are passing down that foundation epigenetically through intergenerational inheritance.

And we know that this crosses multiple generations. So this is really important. So we we start developing our preferences. We also have a period, but I believe it's within the first two years where we develop our fat, the majority, if not all of our fat cells that we're going to have, right?

So when we gain and lose weight, we're not getting more or less of them. They're expanding and shrinking. As I understand it, I'm not a fat, fat expert.

And by the way, fat and muscle are two critical fertility organs. We need to have enough fat. We need to have enough muscle. We can't have too much muscle and not enough fat.

We can't have too much fat and not enough muscle. We need the right balance. We need both of them for our best fertility and our best pregnancy and intergenerational health outcomes.

So one thing that's really interesting is that people who restrict food intake in the Prime Minister in the time leading up to conception and during pregnancy, and I don't know for sure from the science, but it seems theoretically plausible during breast feeding may actually be programing their children for a tendency toward obesity and difficulty with cardio metabolic flexibility because it's training the system to believe that there is not enough.

So the system become preserves more and then you get out into the world and we live in an abundant world. No matter how much somebody doesn't feel abundant in their life.

Right. The world we live in today relative to the rest of human history is abundant, abundant in good ways, abundant in bad ways. And so we it can be that people eat too little, too little, too few calories, too few too little fat, too little cholesterol, etc., and that it's harmful for fertility, which we know, but also can actually set their children up for health consequences throughout the life course and their grand their grandchildren as well.

So when it comes to fertility, you want to be right in that fertile zone of BMI. Not too low, not too high. You want to be right in that fertile zone of consumption, not too little, not too much.

And that's really, really important to understand. So we we got to program not just taste, but also the likelihood of being healthy, of being fertile, of living long.

And by the way, Dr. Beverly, since you like me, are quote unquote, older mom. So I had all I've had all all of mine in my late thirties and forties, pregnant on the first try with each of them at a time in life when all the statistics say you have less than 5% chance of conceiving in any one cycle, and that even if you do conceive, the odds are 90% chance of miscarrying because there's so much abnormality present.

Right. So do you get pregnant on the first try? Stay pregnant at the age that that we did is just incredible. But also there are very close ties between fertility and longevity.

So much so that a study showed that a woman who has her last baby beyond the age of 30 at 33 or later is twice as likely to live to the age of 95. As a woman who finished having children by the age of 30.

So that's just incredible. Example. Also, women who have irregular and long cycles have much higher odds of dying by before 70 year age, 70 or earlier, which again has a strong blood sugar component.

Because when your blood sugar is balanced and you're getting fiber and fats and protein in your meals with with your carbohydrates and you're you're elongating that curve, you're keeping things stable, you're one of the first places that will show up is in your menstrual cycle.

How regular is it? Is it uncomfortable? Do you have cramps? If you're having trouble with your menstrual cycle,

that's a good indication that your blood sugar needs some love.

Wow. Powerful. That was a beautiful, beautiful summary. All right. We were going to end this amazing talk here because we could go on for hours about this. Yes, we could You have so much wisdom to share.

Thank you for saying yes to being on the summit. All right. As we wrap up here, Dr. Cleopatra, any final thoughts for our audience? I just want to remind you that you are so much power and I want to urge you forward.

You as in the person listening forward into your full, fertile power and self authority and say, no matter what I've experienced up until now, no matter what my lineage has experienced, what I'm predisposed to, almost every thing is far more epigenetic than it is genetic.

And in some cases 85% epigenetic. And the epigenetic part we get to shape. So no matter what genetic risks we have and we all have them, no matter what patterns we've seen, we have the power to become the people, the mamas, the fertile women, the fertile men, the fertile humans that we dream of being.

Absolutely. All right. Thank you so much. So friends watching these episodes, please share them with others that, you know, either could benefit that information or who are like minded.

We really want to share the love and spread the word and get real information, facts and actionable insights, things that are helpful, specific, and useful in people's hands so that they can take control and be in charge of their health destiny.

Thank you for watching this episode.