PCOS, Insulin Resistance, and Summit Introduction

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And this happens also in about 15% of thin women that have polycystic ovary syndrome. Probably everybody has some insulin problem at some level. What happens is that insulin is high all the time.

So when insulin is high all the time is because the body is sensing that it needs more in order to normalize the sugar. This is Dr. Talks. Welcome to this episode of the PCOS SOS Summit.

I'm your host, Dr. Felice Gersh. With me for this episode is a brand new fantastic friend of mine. I'd love to introduce you to Dr. Beatrice Olsen. She is a unique character.

I'm telling you, this almost doesn't exist. She's an integrative endocrinologist. And we found out that we're kind of like sisters, that we We're, you know, I'm the OBGYN, she's the endocrinologist, but we approach women's health and hormones exactly the same.

We're going to check it out. Maybe we have a difference or two. We're going to find out. But what I can tell you, this is going to be such a treat. So I'm going to welcome you on and I'd love for you to first tell us a little bit about your really amazing journey into this field.

And then we'll do a deep dive into it. So welcome Beatriz. Thank you so much for joining me for this episode. Feliz, thank you so much for having me in this summit.

I'm so excited. We share so much in our backgrounds and I'm just really delighted to find a similar soul that's a scientist and cares about humans and puts it all together to create something amazing.

So my journey begins actually when I was younger. I came to America as an immigrant from Cuba. And when I came to America, I began to have the American diet, which is a lot of processed, ultra processed foods and sweets.

And I was 11 at that time and I became grossly overweight. And at that point, even insulin resistance had not been described, but I developed darkness in my armpits and in my elbows and in between my thighs.

And I had irregular periods. And through this process, you know, there's a lot of prejudice and biases against immigrants in the first place because we're the other, but also there's biases against people that are overweight and obese and we get treated differently too.

So at that time I was trying to figure out how to help myself and everybody in my family was telling me that I couldn't control myself and what was wrong with me.

So I decided that I needed to learn what was going on and how could I organize myself better. And so it came that I ended up going to Barnard College and from there I went to the College of Physicians and Surgeons, that's at Columbia University, and I became a doctor.

And I was always very curious and interested in understanding how nutrition affects our body and metabolism. So I ended up becoming an endocrinologist and I did a lot of research trying to figure out what regulates appetite.

Dr. Olsenu2019s Personal Journey into Endocrinology

And in fact, in my basic research, I discovered that oxytocin, which is typically, you know, the love hormone, and nesting hormone, which is, you know, causes letdown of milk during breastfeeding also regulates the vagus nerve and regulates appetite by interfering with the emptying of the stomach.

So that was that beginning of a journey that I entered to try to understand what happens to us. And in the process of all of those years and learning endocrinology, learning about hormones, understanding all of the inputs that can occur to us.

In that process, I actually went on to lose my weight over the years. And I actually ended up at the end eating once a day because it naturally occurred that way.

And I have kept my normal. wait for a small, petite person like I am for the last 40 years. And I figured out a way of doing it for me. And then I felt that I needed to help a lot of women because there's a lot of suffering out there.

So it turns out that I actually may have had polycystic ovary syndrome when I was younger and definitely had insulin resistance. However, I did later on after I lost the weight, things got reversed.

I don't have any darkness in my body and I was able to have regular periods. I was fertile and I moved on to truly understand all of the things that actually regulate us.

One of the shifts was that I trained at the NIH and I did a lot of research. fasting women, normal weight women and thin women, and I did ovarian ultrasound.

So I was tracking how the follicles grew during the follicular phase of the cycle, the first part of the cycle. And I was able to document that during fasting periods, the thin women have slowing of the signaling from the pituitary to the ovaries.

And as a result, the follicles don't grow. Whereas for normal weight women, for women that are a little bit overweight, when you fast these women, their ovaries and their growth of the follicle is protected.

So this is one of the interesting things that I've always been very curious as to what is the regulation? What is the signaling? And it makes sense ancestrally and over time, evolutionarily.

that when there is not enough food and there's not enough body reserves, that is probably not the wisest time to get pregnant, whereas other women are more protected.

So that's how this journey came about. And then when I left the NIH, I recognized when people came to my office that I couldn't help them with the conventional medicine I had learned.

I had to do something differently to treat the whole human. And at that time, I learned mind-body medicine and Ayurveda from Deepak Chopra. I went to La Jolla and learned about integrative medicine, the idea that we can prevent disease by what we do and that there's many steps to getting to disease and conventional medicine teaches us to treat disease but not to prevent it.

So that's when I began, 27 years ago, my path as an integrative endocrinologist. I was totally convinced that I could reverse disease, I could prevent disease, and I still I love your journey and what's amazing.

I did not know that you were doing those studies with the NIH until you just told me and I read them. I was going through a deep dive through PubMed and I actually know exactly the studies you're talking about.

And I said, there was this little flurry of interest and then what happened to it? You know, it's like disappeared and now it's sort of coming back. So I definitely want to touch on, you know, all of those really interesting new, brand new discoveries that you made in the past, which are now coming back to be looked at and trying to understand

how this is all working.

But for many out there, some are healthcare providers, some are women suffering, like you said, suffering with PCOS. Maybe you could talk about what exactly is insulin resistance?

Everyone talks about PCOS as a condition that almost universally involves insulin resistance. So what is that all about and what does insulin do? Is insulin evil?

What does insulin even do? Okay. So you have to understand that insulin is a beautiful hormone. And we need the right amount of insulin. Too much insulin can cause troubles.

Too little insulin can cause problems. We also have beautiful fat cells. We need fat cells. They communicate with our brain. They protect our organs. And we women, as we go through puberty, we have the secondary changes that involve gaining weight in our hips, in our thighs, and the breasts.

And these are things that are supposed to occur this way. What happens with insulin resistance or why it's called the resistance is that there's a blockage to the action of insulin.

So insulin normally is secreted from the pancreas when we have a meal. can be carbohydrates, proteins, and fats. But carbohydrates usually trigger insulin to go up faster.

So insulin goes up, and it allows for the carbohydrates that you're absorbing to go from your digestive system through to your liver. And at the liver, insulin allows for the storage of the glucose or the parts of the carbohydrate that are going to be stored in your liver.

Now, why does that happen? Because glucose from carbohydrates is necessary for your energy producing cells, the mitochondria, to use that to create energy for your body.

So we need insulin in order to bring nutrients and to create energy from the nutrients we're having. So if there is too little insulin, we can't access nutrients.

And that's type one diabetes. That's the autoimmune diabetes that happens in children and younger people. And we have to give insulin to these people because they cannot get their nutrients into a form that can be used.

So that's why we do that. On the other hand, as we gain more weight, we need more insulin to be able to get our glucose under control. And that there's a blockage as to how insulin would work to put away the glucose that is coming through your diet and in the body.

So the higher the amount of body weight, the higher the amount of insulin we need to be able to create this energy storage and energy production. So there are many things that may cause insulin resistance.

One of them may actually be using the wrong sugars. Like high fructose corn syrup really confuses the liver in terms of how insulin works. When we're stressed, really stressed, our adrenals are pumping out and we're stressed out.

Insulin is not working at that time because we're cranking out the energies. We're not in storage, we're putting out energy. But generally, when insulin around, we're in storage mode.

And the problem that happens with probably 85% of women that have polycystic ovary syndrome who are overweight is that their insulin doesn't work so well.

And this happens also in about 15% of thin women that have polycystic ovary syndrome. Probably everybody has some insulin problem at some level, but in terms of the percentages, what happens is that insulin is high all the time.

So when insulin is high all the time is because the body is sensing that it needs more in order to normalize the sugar. The problem is that the liver may be resistant to the action of insulin, but the ovary is not.

So what happens is when we have too much insulin, the ovary receives that insulin signaling. And there are two cells in the ovary that are key. One is the Zika cell that makes the androgen component and the granulosa cells that create the estrogen or the estradiol.

And the problem is when there's too much insulin, there is a blockage in getting estrogen done by the granulosa cell. So the thicker cell begins to produce more male hormone and androgens.

What Insulin Resistance Does in PCOS

And what happens is that this increased amount of the male hormones gives signaling to the brain and there's an imbalance of the pituitary hormones so that you don't have the follicle stimulating hormone as high as it should be to make follicles.

And instead you have the theca cells making more male hormone. So this has consequences because the male hormone then works on the liver to decrease the binding proteins that actually hold on to the hormones.

And more male hormone is around. Normally, male hormones and female hormones are bound in proteins. So there's a bound form and a free form that does all the work.

So that if you have a liver that is producing less binding of these proteins and hormones, you have more free hormone working around. And as a result of that, if you happen to be a woman that has a sensitivity or an increase in the male hormone conversion, you might get hair, you might get acne, you might get hair in the midline or hair loss on top.

So there's a combination. So this depends basically on our own genetic makeup. Some of us Don't convert testosterone to the active form, dihydrotestosterone, but some of us are real crankers for that side.

So depending on how we are naturally made to metabolize these androgens will show up maybe with, no, it could be that I'm not having periods, but I don't have any excess hair because I'm a good metabolizer of the male hormone.

Whereas I could have irregular periods and I could have all of the manifestations of the polycystic ovary syndrome, which would be the excess male hormone and the increase in number of follicles that are not being ovulated in the ovary.

And of course, the dysfunction of a variant function causes irregular periods or lack of periods. So this is how this all works. And it's fascinating and it's very interesting.

But I want to add to this that in the United States, we're the highest producers of ultra processed foods. And we have the highest percentage of, we have obesity epidemic, we have a diabetes epidemic.

And if you compare the number of women that are being affected with polycystic ovary syndrome, we have a higher percentage than other countries have. And the thinking is that because we're persuaded to have all of these ultra processed foods all the time, we're shifting our balance so that we become naturally insulin resistant.

And through that, then we're getting more of these polycystic ovary syndrome expressions. And sadly, we now have even many, many young girls that are developing type 2 diabetes, and one in five of those girls will have polycystic ovarian syndrome.

Part of this is the high insulin. And part of the problem is that too much of the male hormones that are produced by the ovary and perhaps the adrenal gland.

And then there's other components. There's apparently gene-wide assessments that have found that 50% of women that have polycystic ovary syndrome have a particular type of gene.

polymorphisms or variations of this gene that cause the triad of having the polycystic ovaries, the ovary not working as well, and the excess male hormone production with the higher pituitary luteinizing hormone LH versus FSH.

So we're talking about a multifactorial problem, but insulin resistance or blockage to the action of insulin, I believe, is a major contributor to a multifaceted problem.

And there's many things that we can do to prevent this, and the earlier we start, the better. Oh, absolutely. And an epidemic it is worldwide. I mean, there's not a continent that holds people.

I'm not sure about Antarctica, but there is not a continent that doesn't have really an explosion. That's why when you look at research for PCOS, it's in Iran, it's in China, it's in India.

It's like everywhere because this is affecting women everywhere. And one of the other things that's always talked about in women with PCOS is this chronic state of inflammation.

So does inflammation maybe related to the diet or other issues? How does inflammation play a role in the development of insulin resistance or its exacerbation?

Well, I think it's a fabulous question because I think inflammation and oxidative stress are actually the origin of aging diseases and aging problems.

Inflammation can come from many places, okay? So inflammation is a state, it feels like you have a virus. You feel like a certain fatigue, your body is some fog, but inflammation can come from all places, but I want to put some attention on the digestive system.

So if you eat not the right foods, if you eat the ultra processed foods, there is the possibility that you get the wrong bacterias in the intestines and you know the beautiful microbiome, all of those trillions of good bacterias that you're carrying around that are protecting you, they're creating vitamins, they're metabolizing things and also they communicate with the vagus nerve which controls the motility of the digestive system and sends signals to the brain and that alters mood.

So you can imagine that the bacteria in your intestines must be tended like a beautiful garden. And if we don't tend it like a beautiful garden, then we get overgrowth of things that we don't like, that's called dysbiosis, and that causes inflammation.

In addition, if we eat foods that have been treated with certain pesticides, or if we have foods that are not working for us, what happens is that we get leaky gut.

so that our gut, which is supposed to be nice and tight like this, if I were to show you this, and then all of the sudden, instead of having these tight cells working together, they open up.

So things that are inside that are supposed to be going through are beginning to leak through. And then the immune system gets activated, you get more inflammation in the body, and then you get autoimmune diseases because the fighting systems, the antibodies that are made to fight the proteins that are coming in and parts of the bacteria actually go around your body.

And then they recognize pieces of tissue, your own tissue, your thyroid, other places that look like a little bit of what that antibody got developed to.

So all of a sudden you get Hashimoto's thyroiditis. as part of the problem and you get inflammations in other places and too much food does this too. So if you're eating multiple times a day and you're eating the wrong foods, you overwhelmed the capacity of the liver and the mitochondria, the energy making units.

So they get tired. They get exhausted. And when they get exhausted, guess what? You lose your energy. And that is inflammation. So there's fat cells by themselves, excessive fat cells send inflammatory signals to the body.

So it's a complicated thing. So at the end is bringing, how do we bring that inflammation down? And we bring it by eating the right foods and tending to our digestive system, making sure that our oral health It's good because a lot of inflammation can come from the mouth and we don't know it and it's happening with us.

So these are the different things that we have to think about and that's why it's about integrating. It's about the wholeness of who we are and tackling this problem from multiple angles because it's multifactorial.

One thing that we do is not going to be enough. That's what I've discovered. It's definitely complicated. I remember back in 2015 when the first article came out of China actually showing that dysbiosis or abnormal gut microbiome was highly prevalent in women with PCOS.

And then you put it all together, you bring it back into the endocrine system. You know, in terms of talking about the endocrine system, I know a lot of people, they talk about hormones and what they do, but a lot of people don't know, like, what exactly is the role of a hormone?

You know, so we have all these different hormones and they have very important roles, but maybe you could just go back, like back to basics 101, like, so what exactly is a hormone?

What is the endocrine system? Just to make it simple, we have glands in the body. We have the pituitary gland. We have the thyroid. We have four little glands behind that are the parathyroids, which regulate calcium balance.

And as we move down, we have our adrenal glands that regulate cortisol and how we deal with stress or overstress sometimes. And then as we move down, we have the ovaries.

and we have the testicles in men. So just to make that simple and of course the pancreas is a huge gland that is the organ responsible for secreting insulin and also when insulin goes down because our sugars go down the pancreas also secretes a hormone called glucagon which makes the liver put out nutrients.

So what are hormones? So hormones are little signaling molecules that are secreted and they go into the blood and they bind little receptors so they have a binding site.

Inflammation, Gut Health, and the Endocrine System

So it's like if you have seen the lunar module go into its landing docket that's how a little hormone goes and goes poof in there. So what happens is once it gets in there a number of reactions happen that change how how proteins are responding to things.

For example, thyroid stimulating hormone from the pituitary goes to the thyroid and when it gets to the thyroid, it makes it take up iodine because we need iodine and it makes it make tyranines so that you put these two things together to create thyroid hormones which are T4 and T3.

So there are signals from different places that create more, it could be creating more hormones, so they can create actions like insulin, which is to begin to process the glucose to go into either storage or to be utilized in the system that creates energy.

It's called the Krebs cycle. So they are like incredibly beautiful. Hormones just give spice to life, truly. They are really delicious. You know, they do all sorts of things.

Imagine like your sexuality, sexual drive comes from testosterone in us, truly. And as we get older, we need more testosterone. And interestingly, that is a problem for women who have polycystic ovary.

On the other hand, women with polycystic ovary have a greater sex drive than women that don't have polycystic

ovaries. So there's gifts of both sides in variable ways as I find it with my years of experience with patients.

So hormones really matter, clearly. And you have to tell me, is this a hormone? Is this a peptide? What the heck is it? But it's been so in the news. GLP-1, you're our special guest endocrinologist.

You have to say a few words. And why are we using a drug mimic of it? And like, how do we get it? And can we just make it ourselves? And why are so many people taking these mimicking drugs for the GLP-1 and similars to try to lose weight?

What's going on here? All right. So these are glucagon-like proteins and that's what they're called. And they are peptides that are called the incretins.

We all can make these molecules. GLP-1 is naturally made in the small intestine and it is made as a result of our chewing foods. If you chew food slowly and if you eat slowly, You get GLP-1 signaling coming from your intestines telling your brain that food is coming and telling your stomach to stop emptying so that it can get what is coming in.

When our stomach stops emptying fast, we get fuller faster. So that if you eat slowly, you're crunching up your glucagon-like peptides. And that helps you to eat less.

and not gain weight. If we eat very fast, we don't give that signaling. So we identify that we have had enough when we get the stretch signals from the stomach.

And that's kind of too late. Then we've eaten too much. So that's number one. So we have the capacity to have glucagon-like peptides activated in us. And also if you eat a lot of vegetables, there was a recent study looking at plant proteins that were given to women in the morning for a period of time, and they had an increase in GLP-1 levels that were measurable.

So GLP-1 is a signal molecule. It could be considered a hormone because it's traveling from where it is secreted, but it's going to various places. It's also going to the brain and it's signaling to the brain that you're having food, that you're having enough.

So what happens is as we gain weight and as we get insulin resistance, the GLP-1, our own GLP-1 levels decrease. And as a result of the diet, the addictive qualities of the high fructose corn syrup and all of the delicious things that are out there ultra processed for us, we have greater cravings.

And it's quite clear that in diabetes and in obesity, there's lower GLP-1 levels than there are in normal weight people, let's say. So all of these drugs that have come out now is due to the fact that realization that if people lose weight.

In general, only 10% will keep their weight off. 90% after losing weight will likely gain it again. And the reason for it is that we have an ancestral brain.

Our brain was made to store calories and to eat whenever calories are available so that we would be ready for scarcity and the famine that would come.

So we're always into wanting, storing, eating. And also the body has a defended weight. So your biggest weight becomes the weight that your brain thinks you should be always.

So the bigger the weight, the more that the brain feels that you need to be that weight. So when you lose weight, What happens is that if you went from 200 pounds, let's say, to 150 pounds, your ancestral brain says, oh my God, you're dying, you're starving, you're not going to survive a famine.

So as a result, you get signals that increase your hunger. The food smells even more, so the cravings increase. And people tend to fall down to their cravings.

Most people don't know how to talk to their brain. That's actually what my book is about. How do you talk to your brain? And tell the brain, sorry, I understand you're trying to help me from a famine, but we're living in abundance.

A famine isn't about to happen right now. And we could do this differently. But so because of that realization, drugs have been made to mimic the GLP-1 so that people can have a sense of satiety.

a sense of not being hungry all the time and not craving all the time because we're using this medical drug to counteract the ancestral drive that we have.

So that's the rationale. So each one of them has become very powerful at helping us to not eat so much. So it slows down the stomach like GLP-1 does, and it tells the brain that you're not hungry.

So that combination allows for people to lose weight, And to not eat, but the primary component of this is that there's much less eating because these drugs cause nausea.

And interestingly, a lot of gastrointestinal problems, but people are willing to put up with this in order to feel better in their bodies. Nobody wants to be in this situation.

Nobody wants a metabolic problem happening to them. And we feel helpless. We feel, how can we get out of this situation? So this is the way. The problem is that if the drug is not available or the insurance company doesn't pay for it, all of a sudden you stop and rapidly you get regain the weight because of the hunger mechanisms and the changes that happen and the drive to return your defended weight back to what it should be.

So that's the rationale behind using these drugs. But you could also do that conceivably by going through cycles of fasting and cycles of nutrition.

Hormones and the Role of GLP-1

So I like the idea of cycles of fasting with cycles of good nutrition and going back and forth so that the body recenses again, like we are ancestral creatures, that there was time where there was no food and time where there was food and we begin to use our resources better.

When you're eating all the time, you can't use your fat cells to give you energy. You're living off the food you're having at that point and you're always storing.

So you have to go through cycles of less eating to periods of pauses in eating so that the liver can release all that it stored and begin to use the energy from the fat cells to make your own energy utilization in the body.

So that's the rationale behind these drugs. The new drug, monjaro or theroparasite, is even more powerful than the semaglutide ozempic that is out there.

But I'm having patients that are developing sores in their mouth, you know, after the doses increase. So there are side effects to this that we don't fully understand all how things are working.

So I'm very mindful that if we are using these drugs, that we also are mindful about the foods we choose and that we learn how we're eating when we are with these drugs so that we can maintain those behaviors if we don't have the medicine.

That's the way to do it. You and I, as integrative physicians, we're not alternative medicine physicians. We are not anti-pharmaceuticals, but we always are searching for alternative ways to utilize the natural functions of the body to achieve the same ends or better without all the side effects and the costs.

I mean, there've been such a revolution in diabetes-related drugs, which are now also being used for weight loss. You know, the drugs that we just talked about, and then, of course, is the old-timer metformin that almost every woman is given, who has PCOS, it seems, and then that new other group, the SGLT-2 inhibitors.

I thought you could touch on that. because, you know, this is your area of expertise. And then let's do a deep dive in any tool we can grasp to try to help us to do this naturally.

So we don't end up on a drug that has significant potential side effects, cost that you have to be on for life, right? Cause there's no exit strategies for most, all of these drugs.

So touch on some of these other drugs that are commonly used now for diabetics and weight loss. And then let's look at alternatives as well. So there's a class of drugs that allow for the glucose that you have in your body to go out in the urine.

So you're able to lose calories through taking these medicines. The thing about them, they're called flossons. That's what they're called. And they block glucose or sugar transporters in the kidney.

So you're able to put out more sugar in the urine. One of the interesting things about these drugs, which are actually fascinating, is that they have been shown to improve the wellbeing and decrease hospitalizations in people that have congestive heart failure and improve the outcomes and actually protect the kidneys.

from damage. And the reason why the basic mechanism appears to be that the kidney feels as if it's fasting during these episodes and somehow gets less damaged over time.

So these are very interesting drugs that are now being recommended, just like the GLP-1s are recommended to people that have heart disease and diabetes because they also improve outcome.

The flaws in the SGL drugs are being recommended for diabetics and people that have heart disease or congestive heart failure or some kidney failure. The problem with these drugs is that you're putting out sugar in the urine.

so that you're increasing the likelihood that you're going to have yeast infections. And there is a rare complication that you can actually have an infection that causes the death of the tissues in the perianal and vulvar area and so that these drugs also have to be looked at with some respect and they can't be given to somebody that has multiple urinary tract infections and I have a number of patients that have recurrent urinary tract infections and they can't, they could definitely use this drug, they can't use it.

are people that are highly reactive to the GLP and can't take that either. So we have a whole range of things that we can do. And I like the idea that as you say, there is such an importance and the gifts that we have as being integrative physicians is that we have various arrows in our quiver.

So when we need to use a medicine, we can use a medicine, but when we can prevent something from happening or reverse something from happening, activating our innate healing system, that's the way to do it.

So these are some of the drugs that we're using and they're very effective in diabetes. And as you know, what is beginning to happen is that these drugs are becoming so powerful because how much weight do you actually lose when you're trying to lose weight?

Normally, if we lose weight, we lose 8% of our weight and then we go into a plateau. The body doesn't want us to lose any more weight. The next series of drugs dropped our weight loss by 10, 12%. And now with the newer drugs, you can lose up to 20% of your weight.

Now, in obesity, we use bariatric surgery sometimes. And so we bypass the stomach or we make the stomach very slim. So the amount of food going there is lower.

Interestingly, that shifts the balance so it increases the GLP once naturally in the body. And you can lose 30 to 40% of weight after those procedures.

So increasingly drugs are becoming as strong as having the bariatric surgery procedure, if you can understand that. But there's problems with all of these, the bariatric surgery, a lot of people can have rebound weight gain.

And of course, there's vitamin deficiencies, nutritional deficiencies, depending on what it is. And there can be episodes of very low blood sugar after a gastric bypass.

And I have seen two cases of people that acted as if they were demented and it's because they were not absorbing thiamine key vitamins of the body because of the bypass.

So anything that we do. Again, we have to do it very thoughtfully. And if there's some way of creating wellness with the least amount of drugs, why not?

And I just want to say another thing. I love metformin. I remember when Dr. Nestler in the late nineties showed for the first time, he did studies both with metformin and then with inositol.

And metformin blew my mind at that time in 1998. because it normalized the cycles, menstrual cycles in women. And this is women that were not having periods and all of a sudden it normalized menstrual cycles, but they lost weight.

And that was the first time that in 1998, I think it was, that I began to recognize this drug is amazing. The other thing about metformin is that it's an anti-aging medicine.

So it creates a state of fasting in our cells that actually shifts. how we metabolize things and it also allows for glucose uptake and decreases the amount of sugar that the liver is putting out all the time.

Diabetes and Weight-Loss Medications

So it lowers insulin by that mechanism. So I like metformin tremendously. It's no longer actively recommended by the conventional system in women that have polycystic ovary syndrome.

Unless they have evidence of pre-diabetes or diabetes, I still love to use the drug, although I have a whole group of women that don't want to use drugs.

And for those women, I will use Mayo and Dichiroinositol. in a 40 to one ratio, and that works too, to lower the testosterone and lower the insulin and help organize the system.

So we have various ways of treating people in different ways, depending on what is desired. You know, each woman has its own unique needs. of what she's seeking, and we have to meet those needs in the best way that we can.

And we're fortunate, Felisa and I, that we have so many mechanisms that we can use to help people and then, if necessary, use the drugs. That's what I always say.

What makes us more unique is we just have a bigger therapeutic toolbox to pull from, you know? Our bag of tricks is just bigger, right? But we haven't shrunken it.

We've expanded it. So in terms of that expansion, talk a little bit more about timing of eating, like you mentioned that for you, you found that eating one meal a day seemed to be magical in terms of your weight loss.

What about, what about fasting? Tell us, you know, you did the research, you know, at the beginning, looking at the impact of fasting on women's ovarian function.

So this is fascinating. So just tell us a little bit more about. timed eating, fasting, and how this can be even more powerful a tool in place of or in conjunction with the other more conventional therapeutics.

Yes. So there are a number of concepts here. And the first one that Felice mentioned is what is called interval fasting. This is actually returning to our ancestral ways of being.

You know, we humans, we would eat during the daytime and then not eat for 12 or 14 hours at night until the morning came. And then during the morning, the light and, you know, the day night cycle, there's different hormones that get secreted at different times.

So we're truly, truly ancestral creatures and we were like plants. We need the sun in the morning. Testosterone goes on, goes, goes up for men, cortisol, our adrenal glands wake up and start activating.

The liver gets ready to begin to process the energies that are going to receive at nights. In contrast, we secrete growth hormone and that's why children grow a lot at nights and we adults can have growth hormone too that helps us to, you know, create, make and keep us strong.

So the day night cycle is important. So interval fasting has various cycles. Is you eat during a period of the day. And then you fast during a period of the night.

The question is, how much fasting do you have to do? So what I have tended to do, what turned out to for me, which is not necessarily what may be for you.

is try to figure out how you're eating. A lot of Americans are eating three meals a day and multiple snacks. We do not need that at all. We need so much less food than we think we need, but we need good foods.

We need adequate protein. We need great vegetables. Non-starchy vegetables are a superb way and good fats. We need the energies. The question is how we're getting it.

So if you're eating ultra processed foods, those are empty calories. You're just increasing your insulin all the time continuously, and that's going to mess us up and cause all of the problems that we're having, including the PCOS.

So if you're having three meals a day and snacks, get rid of the snacks first. and then figure out, okay, I'm going to eat between let's say 11 o'clock and seven, 11 o'clock in the morning and seven at night.

During that period, I'm going to have my brunch and I'm going to have my dinner. But after I finish my dinner, I'm not going to eat from that point until the next day.

So that would be a 16 period of fasting and an eight hour period of eating. So why does that matter? Well, it turns out that the liver holds on to energy.

We have enough storage in there as glycogen. You know, glycogen is like little linked sugars together. So they're like chains and then they come out when we need them.

But the liver can hold on to 12 hours of energy inside so that if you want to shift and begin to use your fat cells as energy sources to lose weight, you need to have at least a period of 12 hours of not eating.

to be able to shift the system. So the liver has two ways of making energy. One is through the carbohydrates, the sugars, and the other way comes from fat.

Fat comes in and it's converted into energy through a different pathway and similar pathway. So either way you can produce energy. So in fact you're not going to die If you don't eat, a lot of people get terrified that if they don't eat, they're going to die.

And in fact, you can go through periods of not eating and you're going to survive. And in fact, your fat cells are there to protect you. So that's interval fasting.

So you can begin, let's say, with not eating from 12 to eight in the morning. You can extend it to not eating from dinner until the morning. That's a beautiful way to do a 12-hour fast.

And 12 to 14-hour fasts are probably what we humans had at the beginning when there was scarcity in the world

and when we had the foods this way. The interesting thing about if you extend the fast now, let's say that you want to fast, and I don't recommend you do that until you have really thought about decreasing the number of meals you're having in a day.

And you can wean yourself of meals over time. But a fast is a 24-hour fast where actually you're using your fat cells to create energy in the body. Some people have a lot of insulin in the body.

They have a lot of fat cells and they have a lot of insulin. And it may take actually days. of fasting to actually activate the system in these individuals.

But the beauty about fasting is that depends on how long you do it, it resets the system. So when you're fasting, your body's not having to worry about deal with the metabolism of the body.

Your body is now fixing or tending or housekeeping. What that means is that while you're fasting, all the dead cells that you have collected over time, which are called zombie cells and they secrete a lot of inflammation around them, these dead cells can be taken in and chewed and processed so that some of their things can be used, but the toxicity of them can be removed.

Okay? So one day of fasting, we'll begin to do that.

Fasting, Meal Timing, and Metabolic Reset

as you extend the fast and there is a book called the Longevity Diet written by Walter Longo and there's also fast mimicking programs that we can talk about but the bottom line is as the days go by of fasting and you can fast by having broth all day or by keeping your calories under 500 of non-sweet stuff just oils or whatever fatty things but the point is that as you fast you lose fat cells but you don't lose muscle mass And you also decrease inflammation because the body is tending, is getting rid of the toxicities.

So actually, you become younger when you fast because the body is tuning itself. And in fact, fasting cycles over time and eating less is associated with living longer.

So this is a beautiful field to enter and it's about something that you can really learn about. We can now reverse diabetes through dietary changes, but also through cycles of fasting.

Five days of fasting once a month for six months has been able to reverse disease using the fast-mimicking programs. And also you can help yourself to lose weight by doing cycles like that followed by a pattern of using your protein, you're not three quarters of your plate's non-starchy vegetables, and sauteing those wonderful vegetables or roasting them with olive oil or avocado.

Having those combinations consistently avoiding the sugar, the ultra-process, having the whole foods, and then having cycles of fasting can bring you to where you want to be.

You just have to be patient. you know, it takes a long time to return to ourselves. And you know, 7% of our fat cells are recycled in one year, which means that it takes 15 years to recycle all of our fat cells.

So technically, The longer that we can keep a lower weight, the better that the brain begins to recognize that this is your new weight, this is your new normal.

So there's many ways of doing this. But I think it's wonderful that you brought this up, Felice, because it's something that is underutilized. We're overfeeding ourselves.

And if we don't overfeed ourselves, if we fast, we begin to use, the liver begins to work the way that it used to work. We're reminding the liver to work that way.

Well, it's so exciting. This really what's become a new concept of disease reversal and the idea that you could be a

diabetic, pre-diabetic and not just treat it to lower blood sugar, but truly reverse it.

And so you have in fact seen this in your patient population, correct? Oh my God. Yes. This is why I exist. I'm so excited about my work. It's good. That's why we get up in the morning, right, is to make a difference.

And so it's not that you shouldn't try to suppress symptoms, lower blood sugar on a just sort of interim basis, but accessing these therapeutic modalities that harness our innate abilities.

to actually burn fat, to control our insulin, to get our appetite under control so we don't have dysregulation. So we talked about, because I delivered thousands of babies over decades, it became really clear to me that this whole regulation of energy is really key to survival.

right? Like a healthy baby knows when to stop eating, right? Knows when to start eating. That by doing these, like the proper diet, by eating according to the rhythms of our bodies, you know, that we're diurnal, we're not nocturnal, by incorporating periods of fasting, that we can actually resurrect these innate incredibly important mechanisms to control energy intake and energy utilization.

And this is like, to me, the future of medicine because this is what is killing people mostly, you know, right? It's these non-infectious, you know, used to be infectious diseases were what killed most people.

Now it's metabolic dysregulation problems, right? In terms of someone who says, okay, well, I want to start doing this fasting and you mentioned about, you know, using fasting, mimicking diets.

How can they learn more about this and start harnessing these inner mechanisms to regain health? Well, I just want to say to follow up, Felice, on what you're saying is that we need to be in the driver's seat.

of our health. And part of the problem is that we have allowed others to tell us what to do and to fix us. This can't happen. We have to be responsible for creating our future and our health.

And I think it's very important. And we have to learn the ways of how to get back to tend to our bodies the way that they're meant to be tended. And that also includes not just regular times when we eat, but adequate sleep.

We need to sleep because that's a very important component of healing. When we don't sleep, we're hungrier. We need to lower our stress because when we're stressed, our adrenals are going.

We have insulin resistance when we're stressed and our metabolism slows down. And also when our hormones change, things happen that slow us down. So it's a combination of factors, but we have to take charge.

We can't let somebody else fix us or depend on them. We have to be able to take care of ourselves. And that's a big message. I have, if it's okay with you, I could say that I have just published a book called Mind Body Secrets.

And it's exactly about, it's a manual. of how we can take care of ourselves, how we can reverse these epidemics, of all the suffering that we're having, the obesity, the diabetes, the anxiety, depression, loneliness, all of these things we can fix through understanding how our mind works, understanding how our body works, and understanding how important it is our connection to others around us.

and how to do this. So I would recommend, and within that book I discuss all of the FAST things, but for anyone that wants to look into FAST mimicking programs, look at the Prolon, F-M-P.

The Prolon is the name P-R-O-L-O-N, FAST mimicking program, F-M-P. P and they have different programs. So the idea here is that you eat foods, actually they're processed foods, but they are foods that fool the body into thinking that you're not eating because they have sufficient adequate fat within it that it tells the body almost as if you're not eating.

So you can go through five days having these foods or these products and your body feels as if it's fasting. That

means that it's doing the things that I told you about that happen after a few days of fasting.

For some of us, we may not want to spend the money for the five days of food. You could try it for one day and see if that works for you. Alternatively, you can do this at home yourself.

using broths. I think that broths, it's a wonderful way to keep yourself well hydrated and also to do this. You must be taking some multivitamin when you do this.

And if you're using drugs for diabetes, you need to discuss that with your regular doctor so that when you're fasting, there's appropriate adjustment of your medications, particularly if you're taking insulin, Or if you're going to do along faster, if you're taking metformin, I would also discuss that with your doctor.

Well, thank you so much for that. And also for bringing in all of what we'll call the critically important ancillary parts of being healthy, like dealing with stress and having relationships and purpose and sleep.

You know, we always put in fitness and avoidance of environmental toxicants. It's like, it's not one thing. It definitely is the total package.

Book, Resources, and Closing Remarks

I cannot wait to read your book. I'm telling you, I am so excited for it. And what about other ways that people can reach you? I mean, everyone wants to read your book and I know it's already an Amazon or it's a best seller.

It's number one. I know, I'm so proud. I'm so proud of you. And so everyone's going to want to read your book. And how else can they follow you or learn more about you or if they want to come and see you?

Well, the name is Beatrice with a Z Olson.com. Just Beatrice Olson.com will take you to my website and all of the offerings that are going on and yeah, I'm happy to serve.

Well, thank you. And you definitely have helped so many thousands of women just with this interview to understand these complexities of the endocrine system and insulin resistance and modalities that we can use to restore health.

Absolutely essential for happiness and healthy longevity. So thank you again. It's been wonderful to get to know you, my new best friend. Well, thank you for having me and giving me the opportunity to work with you to help so many women in the world.

This is why it's all about women helping each other lift the world and heal it. Thank you, Felice. Thank you for tuning in to Doctor Talks. We hope today's episode has enlightened and inspired you on your path to optimal health.

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