INSULIN RESISTANCE SOLUTION PRACTITIONER TRAINING

Overview

Transcript

Hello and welcome. This is Dr. Ritamarie Loscalzo, and we are here for our Insulin Resistance Solution Practitioner Training. I'm excited to be here, because I just love talking about this topic.

I've had such wonderful experiences with seeing major transformations in people with the concept of turning off their insulin resistance, turning on their insulin receptors, getting them to manage their blood sugars, and the amazing health changes that brings. I'm always excited to talk about it.

Just a little bit about me. I have been in clinical practice for over 20 years, I have a degree in nutrition, a Masters in nutrition, I have certification in acupuncture, and I have a Doctor of Chiropractic. I have certification in herbal medicine. Basically, I've got the piecemeal version of a naturopathic degree, plus 20 plus years of experience working with clients. I would say over the last 10 years most of that has been with the challenging cases, the difficult cases, those people who have been to a whole bunch of other practitioners before and are not getting results.

When I said practitioners before, I don't mean just medical practitioners, because I'm sure you guys see that all the time. You see people all the time that have been through standard medicine, and they are missing the boat on nutrition, herbal medicine, and lifestyle changes. When you get your hands on them, they make changes and they have phenomenal success.

But there is that subset that doesn't. There is that subset that defies all the standard stuff, or so we think. Now, we put them on certain foods and certain programs and we get them off of certain things, but they still don't get the results you think they should. Yeah, they get better, but they reach a plateau.

When I started seeing those kinds of patients, I was freaking out. I'm like, "Wait - they've been to a couple of MDs and a couple of naturopaths and acupuncturists, and now they are looking to me for help?

Yikes! What do I know that all those other practitioners didn't? When I applied my systematic approach, I realized that not everybody is as thorough or systematic; there are certain things that were overlooked. So I started digging, and one of the things that I found to be incredibly pervasive was blood sugar imbalance.

Of course, I had learned, just like maybe you had in school, blood sugar imbalance. You take people and you put them on a high complex carbohydrate diet, you get them off sugar, you give them a few supplements, and they are fixed. In other cases, I heard some people don't respond well to the high carbohydrate, complex carbohydrate, version. You have to take them off the complex carbohydrate and put them on a high-protein fat diet. Then there is that, "Well, fat doesn't work because it burns out the insulin receptors."

So I started a wholesale search in digging and digging and digging to find out what could I offer these people that others weren't? How can I approach the problem of insulin resistance so I don't just halt it in its tracks, but I can help them to reverse it?

Together we'll explore why we want to reverse it, and why you are in the right place. If you are here because insulin resistance is more than just an issue of increased waist-to-hip ratio - which everybody kind of knows it's a hallmark sign of insulin resistance - that the belly gets big, and that's kind of a nuisance.

But I'm going to talk to you about the real serious things that can happen as a result, including Alzheimer's disease, which occurs when insulin resistance affects the brain. That might be a totally foreign concept to you as it was to me, because when I was in school we learned that the brain didn't need insulin to take up glucose, it could just take it out of the blood.

So that's a little bit about me. So I went on, and I've got a lot of people that I've taken through group insulin resistance reset programs with amazing results, and some of you may have already been on that program or know of the program that I'm talking about. We'll talk more about that as we go on.

But before I begin I want to make sure that you understand that the information that I'm presenting is not intended to replace a one-on-one relationship with a qualified healthcare professional. It's not intended as medical advice, and the kinds of things I'm teaching you are not intended as medical diagnosis.

I like to use the word assessment and evaluation. I think you should get used to that word, too, unless you are in a situation where you have a license to diagnose, and you are sitting face-to-face. Now, if I'm sitting face-to-face with somebody, it's within my scope of practice to create a diagnosis and give them a diagnosis code.

But if I'm working with a group of people long-distance over the phone, it's not appropriate to do, and it's not within my scope of practice or anybody's scope of practice to do a 'diagnosis' that way. But we can do assessments and we can do evaluations, and we can educate our patients and our clients as to how they can take control of their lives, how they can alter the course of what is seemingly a degenerative disease, a very wholesale epidemic that medicine really doesn't have much in the way of solution for.

But if you are working with people that are working with a medical practitioner who are on medication, you want to make sure you always caution them that they should not go off medication unless they consult with a practitioner who prescribed it. You cannot take them off medication unless you prescribed it.

Also, if you are working through this program and you are taking some of the things I share with you tonight to work on yourself - which may very well be one of the reasons you are here - then also know I'm not giving you medical advice, I am giving you education so that you can make really, really informed decisions that help you to reach optimal health, and help you to guide your patients and your clients to the most optimal health they can get.

What I'd like to do is talk a little bit about what I intend to cover. This is just the beginning of a six-week program. There is a lot of great information that I will be sharing throughout the weeks, a lot of great protocols and ideas nutritionally, recipes even that I'll be going through over the course of these six weeks together.

Tonight I just want to make the case for this. I want you to really feel good that you are here, that you are in the right place. I want to talk about what insulin resistance really is, how it develops, as well. There is a whole sequence of events that happens, and the biochemistry is quite complex.

We'll go over that in detail, and in the course of the program we'll get into a lot more detail about the various parts. We are going to talk about how you can detect insulin resistance in your clients years before conventional medicine would catch it. We catch it years before, I promise you, because conventional medicine doesn't catch it until it gets to a certain threshold, until the labs get to a certain point. They don't know the early warning points, nor do they educate their patients as to how they can detect those early warning signs.

I want to talk to you about the long-term consequences of unmanaged insulin resistance, and it's not just that the belly gets fatter. It's some serious stuff. As you may well know, in some of the big, big killers, and inconveniences that affect our older population as a result of long-term insulin resistance that was unmanaged. Most of these things are preventable.

I like to talk about the five most important early screening tests for insulin resistance. In the course of the program we are going to have a whole lot more. We are going to go into the labs in great detail, we'll teach you how to assess and how to look at those labs, how to read those labs. I'm just going to cover the five most important ones tonight, because I want to give you some juice that you can get started with right away.

The next person that walks through your door, or somebody that you are already working with, you can start to see them in a different light, and maybe get some testing going to determine if this person really does have these early signs.

I want to just let you know that oftentimes as practitioners we have in our mind the kind of people we are going to look at in terms of 'this person might have insulin resistance.' It's usually a more sedentary person, large waist compared to hips, obese, people with diabetes in their family, people who explain that they have these massive blood sugar drops and then raises. But, in fact, you can do screening on just about everyone, and I'll share my story in a bit about how I discovered that I had insulin resistance in the course of teaching this program.

But because I kept a lot of it under wraps, and a lot of the diet and lifestyle pieces were already in place for me, I wasn't showing it in those overt signs. No one would look at me and say "You have insulin resistance." Even to this day if I'm not really careful about balancing all those components we are going to talk about tonight, I can get to the point where my blood sugar is going up.

With a family history of heart disease, and cancer, and diabetes, and stroke, I don't want to go down that path, so I'm really careful. A lot of patients may be like that, and you, in fact, yourself might be.

We discovered the last time we did this program just a little over a year ago that some of the people - the practitioners going through the program - that they indeed had insulin resistance, and it was a real eye opener for them to start to look and reverse that trend in them, and they got really motivated in terms of doing it with their clients.

Then we are going to talk about the five most important steps to restoring insulin and blood sugar balance. We will go through in-depth each of these as we go through the program.

Then the five most important nutrients. There is a whole bunch of nutrients; we have check lists in the program. You'll be getting that as time goes on. We will be releasing those at the appropriate times. But I want to talk about the five most important ones.

Why? Because you can start to help people immediately by getting them on even at least the top three of these. I'm giving you five, but at least the top three you can get people to change right away.

You can help them to balance right away, you can help them to get rid of the sugar cravings and the desire for sweets after a full meal, and a lot of those other things that keep them from doing some of the diet stuff they know they should do, but they can't because of the uncontrollable cravings.

We can physiologically manage those cravings, biochemically manage those cravings, by using some of these nutrients. I want you to walk away tonight with something that you can use and put into place over the next week until our next call.

The staggering statistics: it's really an eye opener, and it's really sobering when you look at these statistics.

As of 2011, which was the latest stat that I could find, 18.8 million people in the US had been diagnosed with diabetes - that's about 8.3% of the population. This is huge - 8.3% of the population diagnosed with diabetes. It is estimated there is another whole spectrum that hasn't been diagnosed.

You also have to remember that that doesn't count the people who are pre-diabetic - who are about a month away from diabetes in terms of medical statistics, and medicine isn't labeling them that way. It's the seventh leading cause of death in the US. The cost - this is what is really sobering - $245 billion in 2012.

Can you imagine if you could save the healthcare budget $245 billion, you can be part of saving that money? A lot of the stuff that we can do can turn this around and get rid of that cost, or a big portion of that cost.

Insulin resistance - and we'll also talk more about the difference between insulin resistance and diabetes in a bit in a spectrum - but insulin resistance, which is like pre-diabetes - a lot of medical practitioners will call it pre-diabetes. It's estimated to affect one in four in the US - about 68 million people. One in four; that's 25% of the population. That's just the ones that can be diagnosed based on the lab levels that medicine holds true.

This is, in effect, the underlying cause, or one of the most serious underlying causes, of why this is such an epidemic. The average American consumes 130 pounds of sugar in a year - that's more than 22 teaspoons a day for adults and 32 for children. There is a link for where I got this statistic, it's pretty well known.

Let's just see how much sugar that really is. That's an entire dumpster full of sugar. One person - that's one person - and I know I don't eat any, and you guys probably don't eat any or very little, so somebody is eating our share, somebody is getting a lot more than that 130 pounds or 22 teaspoons. Can you imagine 22 teaspoons a day of sugar? That's not counting fruit - that's counting added sugars or sugars in baked goods and things like that, that's not counting apples and things like that - that's sugar.

So here is what it is. This to me was shocking. The American Heart Association recommends no more than 9.5 teaspoons a day. I mean, come on! Is that a responsible recommendation - 9.5 teaspoons of sugar a day? Would you recommend that to any of your clients? Not hardly. The average adult it's 22, and the average child it's 32.

The biggest culprits are soft drinks, believe it or not. People are still drinking soft drinks, full sugared soft drinks, and in enormous rates. Of course, sugar in candies, added sugar to coffee and tea. Candy, if you are eating that - the M&Ms in the machine in the late afternoon when their energy is dipping, cakes, cookies, pies, fruit drinks. A lot of those fruit drinks, that's not even counting fruit juice, which is a high source of sugar. But the fruit drinks, those fruits drinks that are about 90% sugar and 10% juice.

Dairy, desserts, and milk - ice-cream and frozen yoghurts and that sort of thing. Then other grain-based things, and you've got to realize that it's not just in the obvious, it's not just in the desserts.

Sugar is in everything. Pick up a jar of tomato sauce. You don't know how long I spend at the supermarket, at the Whole Foods, looking for tomato sauce for my kids that doesn't have sugar in it. There are one or two brands that don't have sugar. It's added to everything; it's really staggering how much sugar there is in the foods that we are eating.

Your body is equipped to handle sugar as part of a whole foods diet, and it's got the mechanisms for handling and for managing your blood sugar. Your blood sugar needs to be maintained in a steady state within a pretty tight realm or range. Fasting, I like to see it between 75 and 89. But at that level you've got a steady supply of sugar that can be fed to your brain.

The problem is if the sugar goes too low, your brain doesn't get enough glucose, and you go into that state of feeling like you are going to pass out or brain fog, as a lot of people describe it.

There are a lot of the parts to the body that are required to keep the blood sugar managed. It involves the pancreas, which secretes a couple of hormones; the liver which controls the rate of fat storage and burning. Also glycogen, which is the storage form of starch, and then your adrenals. Your adrenals, when you get under stress, secrete adrenaline - epinephrine - and that will cause the breakdown of fats to produce sugar into your blood so that you can get the heck away from a hungry tiger.

Cortisol maintains that by doing a process called gluconeogenesis. It prefers to breakdown protein, although cortisol can also trigger the breakdown of fats and of stored glycogen, etc. But its preference is muscle tissue to breakdown proteins, because it's quick and easy to break down.

When your blood sugar gets too high - so you sat down, and you ate the typical American meal that contains 22 teaspoons of sugar - then insulin is released by the pancreas to bring that level down. Well, how does it bring it down? The ideal is that it takes the sugar and it allows it to be transported into your cells so that your cells can make ATP - energy, adenosine triphosphate.

Once it does that, the sugar in the blood goes down, the pancreas stops secreting insulin, and everything is good. However, it also can cause the storage of that sugar into fat cells. So if you've eaten too much and the cells have enough, you'll store it as fat. Over time, if you eat a lot of sugar the receptors on your cells get burned out, and that's the condition we call insulin resistance. We'll look at in a bit how that progression goes.

When the insulin resistance develops, instead of the sugar being shuttled into the cells to give you energy after a meal, it's shuttled into your fat cells because the fat cells don't generally become insulin resistant. When your blood sugar gets too low, your pancreas secretes glucagon, and glucagon goes out and signals to the liver to release some of the stored glycogen.

If there is no more stored glycogen, it triggers the release of either protein breakdown or fat breakdown to create the amount of sugar that your body needs to maintain that steady state. So the glucagon insulin is going on pretty much all day in a cycle. You eat a meal, you get a whole bunch of sugar into your system, insulin goes up, the insulin - under normal circumstances - gets taken into the cells, and the blood sugar goes down.

You are just at a state where maybe you've run out of fuel based on that last meal, and it's hasn't started the next meal so the sugar starts to drop a little bit more. The pancreas secretes glucagon, does its thing, and brings the sugar back up. But there is a lot of stuff that affects this whole process.

Stress is one of them. The release of cortisol and adrenaline will stimulate the release of sugar from stores. It's affected by diet obviously. If you are one of those average Americans who is eating 22 teaspoons of sugar, you better believe that your blood sugar management system is extremely stressed.

It's also affected by genetics. It is said that about 25% of the population will not get insulin resistance no matter what they eat. They could eat that 22 teaspoons of sugar a day, 130 pounds a year, they can just be constantly stressing their system and they won't get it, because genetically they just don't have the mechanism to get it.

And then there is about 25% that no matter what they do, no matter how careful they are, they have to be extremely, extremely careful, or they are going to develop it. And then there is the 50% in the middle who are going to develop it based on habits - good eating habits or bad eating habits.

Those are the ones you are going to most affect. You will get a few of those in that 25% that they are really hard; you have to be really careful with them - I've worked with those. I've seen the people who are up at the other end. I had somebody say to me, "Well, I wanted to test your theory of the blood sugar, so what I did was I made myself a smoothie and I put eight bananas and half a box of spinach in it, and I drank it and my sugar went from 85 to 95. Is that a problem?" I'm like, "No."

I had another person who put a handful of raisins in a big salad, and her sugar went from 85 to 202. Is that a problem? Yes. So we have people at all ends of the spectrum. What I want you to do is understand this well enough that you can know how to adapt and create protocols that these people can follow, and share with them why it may not be working as well as it's working for the neighbor, and how you can help them.

Let's go into a little bit more detail about the normal insulin response to food. You eat, and as a result of eating your blood glucose rises, your pancreas secretes insulin, the insulin escorts the glucose into the cells, and then the blood glucose decreases. Your leptin levels rise - leptin is secreted by fat cells, and it triggers fat burning.

Your pancreas stops secreting insulin now, and then the increase in energy happens as a result of the glucose getting into the cells and being converted into ATP.

You feel good until you get hungry again several hours later. We'll talk as the program goes on about meal spacing - you want the ideal meal spacing that's for most people, and help people determine what the ideal meal spacing is for them.

The whole concept of eating every two hours - I'm going to shoot a lot of holes into that. You'll decide for yourself, but I'm going to shoot a lot of holes, I'm going to do my best to shoot holes into that because it doesn't make sense biochemically. It may make sense physiologically for certain people based on where they are at. We have to be aware of that; but for the most part a wholesale recommendation like that - I think it's dangerous, very dangerous.

You get hungry and you eat again, and the whole thing starts over. This is normal - this is what should happen, so let's look further. In normal glucose blood sugar regulation, of course you get a decrease in the blood glucose between meals - decrease in the blood glucose, pancreas secretes glucagon, which triggers lipolysis, which is fat cell breakdown.

It also can trigger gluconeogenesis, which breaks down the glycogen in the liver which is a storage form of sugar in the liver. Your blood glucose rises under heavy extreme energy demands. So say you've eaten a small meal and then you are out there running and jumping, and you don't stop and get another meal.

After a while the glycogen in the liver gets depleted. There is just so much that it can store. In addition to the glucagon, which is the normal response in between meals, the stress response happens and cortisol and adrenaline are released, and that triggers more breakdown of your muscle tissue.

Adrenaline gets in quickly and it breaks down the fats, but cortisol more triggers the longer term breakdown of muscle and it breaks down the proteins into glucose.

This is a little bit of just the whole dance that they do. Low blood glucose triggers the pancreas to produce glucagon, high blood glucose produces the pancreas to secrete insulin, and then they do their job, and then you achieve normal blood glucose.

You should be pretty steady throughout the day. We'll talk more about what the good rise in sugar is after a meal, then when it should come back down to normal.

All of this affects the body tissues.

Let's talk about the brain a little bit, because this is really important for you to understand. This is cutting edge stuff. The old thinking, what I was taught when I was in school, is that the brain doesn't need insulin. It can transport glucose into the cells of the brain without it.

It can cross the blood-brain barrier. But indeed that is not true throughout the entire brain. Yes, there are parts of the brain that can uptake the glucose directly out of the bloodstream and utilize it without insulin, but now we find that insulin plays a very significant role in the brain.

There have been receptors for insulin found in very high concentration in the hypothalamus - which is your regulatory center of the brain, controls temperature, and controls pituitary hormones, hormone levels. The cerebellum, which is in the back part of your brain, controls balance. People that get out of balance and don't have enough sugar get into their brain - kind of have that stumbling, kind of drunken sailor gait. The hippocampus, which is responsible for short term memory. The cerebral cortex - the front part of your brain, which is responsible for the high level thinking.

If your brain is not getting enough, if your brain develops insulin resistance - which we are finding can happen (didn't use to think your brain could) - then these parts of the brain get affected, so you'll have gaps in short term memory - that foggy feeling of why did I come into this room - what was I looking for?

You get that kind of off-balance, kind of staggering-type gait. Some of the temperature regulation goes off, your appetite regulation goes off, you end up with higher levels of appetite than you would before, and your high level thinking function goes off. People will describe it as brain fog - "I have my brain fog." One of the primary causes of brain fog is insulin resistance in the brain, blood sugar problems.

It's really important. There is a lot of research now that's looking at Alzheimer's as potentially being insulin resistance of the brain.

You talk about a condition that nobody wants to get. I mean it's one thing to have a physiologic condition where you are impaired, but it's yet another to have your brain just go out to lunch. Your body is perfectly fine and your brain isn't working. I know people that have been through it, and it's not pretty.

So let's talk about what happens in response to food when we have insulin resistance.

You eat a meal, the blood glucose rises, the pancreas secretes insulin, but because you've been eating a lot of sugar and refined carbs, you've been not sleeping enough, and a lot of the other factors that go into causing the cells to become resistant - eating a lot of hydrogenated fats which damage them, eating a lot of gluten which causes them to be inflamed - a lot of causes - we'll be going through all of these in great detail as the course progresses - your cells become resistant to insulin.

The glucose stays high, so the pancreas says “Oops - high glucose, what do I do?” Secrete more insulin, high glucose, secrete more insulin. It just keeps secreting enough insulin until, when it’s not going down, the excess sugar is then stored as fat. It triggers that to be converted into triglycerides and stored in your adipose tissue - especially around the waist.

The excessive insulin, the high levels of insulin, create insulin resistance in the cells of your muscles in some of your organs. But your blood vessels don’t become insulin resistant. What happens when your blood vessels don’t become insulin resistant is that the insulin actually damages them and they become thick and inelastic, and it’s a problem.

And then you feel hungry right after the meal because your sugar is high but your cells aren’t seeing it, so you are not triggering that satiation response, and so you eat again. What happens is you have this constant flood of insulin in the body all day long, and it becomes problematic. Very serious complications develop as a result. We are going to look at what some of those are.

Let’s look at some of the underlying causes of insulin resistance. We’ll be going through these systematically throughout the program to help you. We are not going to talk too much about genes, I talked about that already - some people have the genetics that predispose them and other people don’t.

Inadequate - and I should also say excessive, nutrition, inappropriate nutrition - too much sugar, too many carbs, too many hydrogenated oils, too many heated oils, oxidized fats that create oxidation and inflammation that damages those receptors.

Stress! When you are highly stressed you create a lot of adrenaline and cortisol, and those contribute to insulin resistance because they release stores, and then your blood sugar is high.

Lack of exercise. You know that trained muscle becomes less insulin resistant than untrained muscle. When you exercise, you are training your muscles to pick up the glucose from the blood and you reverse your insulin resistance. You have to have regular exercise, and we’ll talk more about the details of that. I give you lots and lots of resources for that, and lots of things that you can share with your clients. Lots of audios and videos, and just lots of stuff that you can teach your clients.

Sleep. This turns out to be my number one problem when I tested my glucose and found out that I was insulin resistant - poor sleep. Even one bad night of poor sleep - according to my research in many, many, many journals - one night of poor sleep can cause insulin resistance in even a healthy person.

It's a temporary insulin resistance if it's one night of poor sleep, and you can restore it back in the next day. But if it's days, weeks, months or years of poor sleep like me - and I don't mean poor sleep like I couldn't fall asleep - it's just like I'd never went to bed; I would just stay up all night and work because I felt like I had a lot of energy.

But that I think was the key because once I started to sleep, I would find that the things that made my blood sugar go up didn't make them go up as much. So you are going to take all these things into effect when you are talking to somebody to assess and to follow them and monitor them. When they say "Oh, my blood glucose is up," you are going to go, "Okay, tell me about what you ate, tell me about your stress yesterday, tell me about your sleep, did you toss and turn last night." That's going to affect their fasting blood glucose and also their maintenance of glucose throughout the day.

So let's just go through some of the causes of insulin resistance.

I talked about genetics. By age 60, 40% of Americans have at least three markers for insulin resistance, and 60% to 70% have at least one. Omega-3 deficiency, especially DHA, contributes to insulin resistance. Those resistors need that in order to be able to pick up the insulin signals. If you've got an omega 6-to-3 ratio that's too high, or you have trans fats in your membrane, we'll go through a lot of detail about this.

So we'll go through that. I have a spreadsheet for you that I will share and you can actually track for yourself and then teach your clients to track their ratios of omega 6 and help them to optimize that. Of course trans fats - most of you probably know what they are - but those hydrogenated fats, oxidized fats, damaging fats - they damage your cell membranes and then they can't pick up the insulin.

Deficiencies of nutrients - and here is where we start to talk about some of your nutrients: chromium, magnesium, zinc, B vitamins, boron, and lithium - they have even been found to have an effect.

Lack of resistance exercise, manual labor, and trained muscle mass. It doesn't mean you have to go to the gym. You get somebody who is working out in the fields who does manual labor, they are going to have trained muscle mass. You don't have to have somebody work out at the gym three hours a day - it's just really good quality exercise.

Of course sugar, processed foods, starches, fruit juices, sodas - those create insulin resistance.

Stress via the high levels of cortisol.

Insufficient protein, which is an often overlooked one, and not just insufficient protein. Somebody may be taking in plenty of protein in their diet but they are not absorbing, and we'll go through that when we do the nutritional section about how you can assess some of those things.

So some of the symptoms that you might see your clients may be suffering that are hallmarks of insulin resistance. That excess belly fat even in somebody who is thin, you see that a lot. Somebody comes in and they weigh 115 pounds but they have a belly hanging over their pants, they have that muffin top. I know, I worked with a couple of people in the program last year, one person she started out but she weighed 100 pounds, but she had a muffin top, believe it or not. Now she doesn't, and she's beautifully shaped. She actually won a fitness contest because she followed these guidelines.

Low energy, especially after meals. It's because the sugar is not getting into your cells. It's like you are eating foods and you are feeding your fat cells, or your clients are doing this. You are hungry even after a full meal for the same reason. You eat and it's just feeding your fat cells so your brain doesn't get the signal that you are full, that you have the nutrients you need.

People who have that mid-afternoon energy slump. Of course, that can be adrenal fatigue, but it's also related to insulin resistance when the blood sugar starts to drop. Sometimes people have that hyper-insulin secretion. They are resistant, resistant, resistant. The pancreas finally secretes so much insulin it exceeds that, and then boom - it all drops down, and you get a low blood sugar slump. Or the low energy might just be after lunch where nothing is getting in, the sugar is high but it's all sitting in the blood, and then it gets stored away as fat.

Focusing difficulties: it's really difficult to focus when your brain doesn't have the adequate amount of sugar.

Then you are cranky and irritable if you miss a meal. Yeah - who says that, "Oh, I have hypoglycemia," as if it's just a normal thing, "Oh, my blood sugar is low, I feel cranky." That's not normal. Your body should be just managing insulin and glucagon to keep you nice and steady. So if your clients are complaining about this, know that it isn't. There is something going on there. It's not just, "Oh, this person has to eat more often." Eating more often may help them to feel better, but it's not solving the problem.

So let's switch gears and talk about early detection of insulin resistance, also known as dysglycemia, what would be the early signs.

They are not quite in the lab range to call them insulin resistant, which according to medicine, the lab range for insulin resistance is between 100 and 119.

In my book, and in our functional medicine practices, we should be looking at insulin resistances anywhere from 90 to 100 or early insulin resistance - that's when you want to catch it. Somebody has a first morning fasting blood glucose that's between 90 and 100 - that's an early sign of dysglycemia - early detection of insulin resistance.

But that's just one - that's not the whole thing. So I highly recommend that you learn how to, and you teach your clients how to, measure your own glucose at home. Like me, you should practice it before you start to teach it to people.

I was in for the shock of my life! I bought my meter - bought a brand new one - I had an old one and I couldn't find strips for it - so I bought a new one.

I'm sitting there at home and I took my blood sugar. I think it was about 8:00 or 9:00 at night, and I had just come home from the store. I had just actually taught a class with somebody, a raw foods class, and I had eaten something a few hours before. I took my blood sugar and it was like 68. I was like - what?

Why is my blood sugar that low? I looked back to see what I'd eaten. The last thing I'd eaten was some kind of raw food cookie with dates in it that somebody had given me at this thing. So I'm like, "Hmm, am I having a hypoglycemic low, a reactive hypoglycemia that came from too much insulin - huh? So let me just eat something and see what happens." So I cut up some pineapple, and I ate some pineapple.

I just was anxious. Usually you are going to wait till the peak, and I'll show you some charts to show you when things peak, but you're going to wait. But I was curious so I pricked my finger right after. It was 135. How could it be 135 so soon? It must be a mistake. I do it again, it's 140. I do it again. I kept doing it, and it rose up to a peak at 167 at about 45 minutes after I ate the pineapple.

That's pretty typical. You'll have a peak - your glucose will rise, rise, rise, rise, rise. It usually peaks somewhere around 30 to 60 minutes. Most people it's 45, but you'll be able to teach people by the end of the course - you'll be able to teach people how to know what their curve is so they don't have to test it like I did every few minutes to plot it. But I'm a scientist and I like to do that kind of stuff.

Well, when I got there I was hungry. I was pretty hungry before I ate the pineapple, but after I ate the pineapple I was even hungrier. Was that a sign of insulin resistance?

I was starving, and it was the point where I was like, “I'm not going to eat anything because I'm going to test this, I want to see how long it takes for it to go back down and it was going to be real scientific.” But it was really hard, I just wanted to go to the kitchen and eat everything in sight.

So I just monitored and watched how I felt. The starvation was just overwhelming, and it went up, it peaked, and it wasn’t until about two hours and 15 minutes later that my sugar came back down into what’s considered a normal range of 85. So I watched that. I was like, “Ooh, you have insulin resistance girl.” I was adamant - how can I have insulin resistance? How can that possibly be?

I am thin, I have no belly fat, I have no brain fog, I have tons of energy, I’m clear headed, I exercise, I’m really good at doing stress management. (By the way, we are going to teach you a really good process that you can share with your clients throughout the program.) What am I doing wrong?

I realized I wasn’t so good at timing - we’ll talk about that as we go through. Timing is really, really important. I wasn’t sleeping enough. There were five pieces that I was preparing to teach people in a group, that I worked with people on - but I wasn’t always true to it myself.

I wasn’t sleeping properly, I was staying up till 2:00, 3:00, 4:00 in the morning, not getting enough sleep, and that’s when I started to really dig in to the sleep research and realized that the sleep was super important. Three out of five is not good enough, four out of five is not good enough. You've got to get all five under control if you want to get the optimum. Getting a home glucose meter is really critical.

Getting them to get their hemoglobin A1C tested. Hemoglobin A1C is the percentage of the red blood cells that are sugarcoated - glycosylated. They are sugarcoated from having the blood sugar up high. You can estimate the average blood glucose by the percent of hemoglobin A1C in your blood.

Say for example the hemoglobin A1C is 5.6, which is right below the threshold where the typical labs say it’s going into the early pre-diabetes stage. At 5.6 your average blood glucose is about 118. My friends, that’s not good. You’ll be learning very intimately what good numbers are, so that by the time you finish this course, somebody will tell you glucose numbers, you are right on it, you know exactly what it means.

There are also some stealth lab analysis techniques. I'm going to share some of those with you, too. Some other things that may not seem to be related to glucose, but that you can look at for early detection, like triglycerides, and HDL and their ratios.

The waist-to-hip ratio should be greater than or equal to .8, or greater than .1 in a male. So greater than .8 in a female or greater than .1 in a male is a problem. That's an early sign of insulin resistance. It doesn't matter if it's just a little bit over there. If it gets there, that's a sign - it shouldn't get there. Anybody that has a waist of over 35 inches, that's considered an early sign.

We have the symptoms survey - I'm going to show you that in the program. You'll get to go through these symptoms and be able to share those symptoms surveys with your clients and see how they are doing.

I'm not going to go through this too much. We go through this when we go through measurements, the glucose tolerance and how to read them and all that, but what you are seeing here on the picture is a chart of normal blood sugars. They just basically gave a person a high glycemic, a high carbohydrate meal at 7:30.

You can see that their blood glucose right before 7:30 were pretty flat. People at the low end were down here with their blood glucose in the 70 range. The ones at the higher end were in the 90s to 100, but these were not diabetics. These people all had blood sugar under 100. The highest one was about 100 or a little under, like 99, at the early part before they started eating.

But you can see what happens. Typically your glucose is going to go up, and it's going to peak at about half hour to 45 minutes, and then come back down and get back down to the average. I like to see it get back down to where it started within two hours for really good glycemic control.

But the problem is, a lot of docs are telling people to measure themselves at two hours and finding, "Oh, you are normal at two hours" or, for diabetics, just telling them, "If your sugar is back to 140 at two hours, you are good to go," and that can't be further from the truth. It should never go above 140. Diabetic retinopathy starts at 140, and we go through that in the assessment module as well.

So you want to keep that sugar in a realm that doesn't go above 110. The people at the lowest end didn't go above 100. You want to keep it in a healthy range. When you start working with people you are going to see where they are at the beginning, and you are going to give them goals. The idea would be to keep it below 110, but you may not be able to get it there for a little while, while people are making the changes.

This is just an overview. We'll go through this in a lot more depth, and you'll get the charts, and you'll get spreadsheets. You can put numbers in and graph out your own, and use that to graph out your patients.

This is a response to a glucose tolerance test. If you look at the low end, even after giving this person 100 g of sugar, they just hardly ever peaked at all.

The maximum and the normal people was just about at 150 after pure sugar - these are non-diabetics. So you can see that there is a lot of misconception about what normal sugars are and what should happen, and you are going to get intimately familiar with it. I just wanted to get you started here.

What's called postprandial blood sugar means sugar after eating. That's what's overlooked in measurement. That's where you can come in and be that stealth sleuth that knows how to handle it.

Studies of Native populations show that exercise and whole foods have postprandial glucose that rarely goes above 100. So for this training I'm recommending people stick to about 110, no higher than 110.

Measure hemoglobin A1C. If your fasting glucose is high but your hemoglobin A1C is normal - meaning that your average is low - it could be a vitamin B1 deficiency. Vitamin B1 deficiency is one of the hallmark deficiencies in people with diabetes. If you are looking at somebody and their fasting glucose is like 110, but their hemoglobin A1C is 5.2, it's probably a B1 deficiency. That's just to throw that one out there at this point.

There is a calculator that you can get online. You can go there, and you can just click in and type in the person's hemoglobin A1C. It will tell you what the average glucose has been over that period of time.

You usually only measure the hemoglobin A1C every three months because it takes that long for the red blood cells to recycle - three to four months.

A normal non-diabetic level of hemoglobin A1C is considered between 3.5 and 5.5. We consider the ideal to be 4.5 to 5.0. These are things you can be looking at early on.

As a result of insulin resistance, there is prolonged inhibition of fat burning, so the whole thing about eat every two hours to keep your blood glucose steady means that you have a steady stream of insulin in your system, which means that prolonged inhibition of fat burning. You are not going to be burning fat all day long.

You are going to have excess belly fat. You have increased lean muscle mass and damage to the vessel linings, as I talked about before. We'll go into a lot more details about how we are going to look at these things and reverse these things. You can have damage to your blood vessel linings as a result of the effects of insulin, because remember - blood vessel linings do not become insulin resistant.

Plus those glycosylated blood cells that hemoglobin A1C is measuring - those are sticky and sharp. Think about what happens if you were to take some molasses and heat it up, then drip it on to a countertop and let it dry.

It's sharp and sticky. That happens to your blood cells, and then it damages the blood vessels, causes inflammation, causes high blood pressure, causes your blood to thicken, causes you to retain fluids. It can initiate cancer through oxidative stress and a substance called IGF1 - insulin-like growth factor 1.

These are the serious consequences of insulin resistance. This is the kind of stuff you should be talking to people about if you suspect this, and they are like, "No, I don't have diabetes in my family - I don't have to worry about it." Well, in addition to the increased body fat, you end up with thyroid and growth hormone deficiencies. You have an increased cancer risk, you have high blood pressure, injury to blood vessels to systemic inflammation, the risk of Alzheimer's. If nothing else scares people, the risk of Alzheimer's should. I've watched people go through it, and it's not pretty. The thought of losing my mind and being full body functioning is beyond me. Low energy to all your organs and glands.

Let's talk about what I think are the five most important lab tests. It was hard to decide what the five most important are, so these are among the top most important ones. Fasting glucose - of course that's a hallmark. But know that you are not going to diagnose the person as a diabetic until it's above 120. But that range between 90 and 120 is really critical.

Fasting insulin should be between 2 and 5. If it's higher than that, and this is anybody but a Type I diabetic, you are going to see it really low for pathological reasons. But between two and five is a good range. Higher than that means you are producing too much insulin and you are going to be prone to insulin resistance.

Triglycerides and HDL - critical. When you have elevated blood glucose, a lot of it gets stored into triglycerides, and the triglycerides float around in your bloodstream. When your triglyceride to HDL ratio is off , which is barely ever talked about or measured, but really critical for insulin resistance.

So what you are looking for is ideally a 1:1 relationship between triglycerides and HDL. If your triglycerides are 75, your HDL should be 75. Your triglycerides really shouldn't go much above 75 or 80. Once they go above 90, it's considered insulin resistance. That would be a really nice ratio, triglycerides of 100, HDL of 100 - well, that's a little high for triglycerides, it's little high for HDL. Most people don't go that high, but they are about equal.

It can go as high as 2:1, but it should never be above 2:1, and 2:1 is iffy, because maybe I have 100 triglycerides and 50 HDL. Either way, they are too low, so really the ideal is 1:1.

Hemoglobin A1C of course, which we talked about, gives you the long term glucose control. These are things you can start right away with working with people and checking.

You may have labs on people. Pull some of the labs out and start looking at their triglyceride-HDL ratio. Pick up people who you didn't even realize were insulin resistant or heading that way. Then you have something to work with them on, on their next visit.

Here is a table of lab marker patterns.

Again, we go through more of this in the program as we dig in and do the measurements part that gives you an overview, but this is a nice chart to keep handy. The fasting glucose - in the normal range 75 to 89, insulin resistant 90 to 119. Official insulin resistance medically is between 100 and 119, so we can call it early insulin resistance between 90 and 99.

Metabolic syndrome, which is an advanced state of insulin resistance, which also includes changes to the cardiovascular and high blood pressure and things like that. You'll often see elevated cholesterol and all. That's greater than 100, so between 100 and 119, and diabetes is over 120. The triglycerides - the triglycerides under normal should be about 75, between 50 and 90.

Insulin resistance is going to be greater than 90, metabolic syndrome greater than 110, and diabetes greater than 110. You are going to see that a lot in people. You see the elevated triglycerides a lot. The HDL is between 50 and 90 normal, less than 65 on insulin resistance, metabolic syndrome, less than 55, diabetes less than 55.

It doesn't mean if somebody has less than 55 on HDL you can diagnose them as diabetic. This is what we are seeing as patterns. Fasting insulin, for normal, should be between 2 and 5. Insulin resistance normal or greater than five, it varies based on stage. You can see somebody with insulin resistance and still have like a fasting insulin of 4.

But you are going to start see it creeping up in all of metabolic syndrome diabetes. You are going to see those creeping above 5.

Finally hemoglobin A1C, like I said, ideal is between 4.5 and 5, insulin resistance between 5.3 - 6.5, metabolic syndrome and diabetes, greater than 5.7. Nice chart to keep handy.

So we talked about the dangers, we've talked about the progression, we've talked about some of the labs, some of the ways to assess people. Let's just talk about the ways that you are going to reverse this; this is what the heart of the program is going to be all about. We are going to go through in detail step by step assessing people, monitoring people, putting them on programs, and watching them soar - watching their health improve.

You want to increase insulin sensitivity - we have certain nutrients for that. You want to decrease their need for insulin by decreasing the foods that cause the need for a lot of insulin. You want to reduce inflammation in their body. There are ways to do that, because the inflammation damages their receptors.

You want to optimize their fat burning and the lean mass building, and then minimize the impact of stress. I call it the candy bar eating effects of stress, because when you get stressed it's like you eat a candy bar. That's how much blood sugar goes up, and who wants to have the effects of eating a candy bar when you didn't get to have the fun of eating the candy bar, right?

So we are going to be looking at the five key lifestyle areas. Four of them are really lifestyle areas, and one is kind of an overall: nutrition, stress, exercise, sleep, and timing. Remember, I said earlier when I looked at myself, I did the check list. I went, "My nutrition is good, my stress management is good, my exercise is good, but sleep no good."

Timing, well sometimes I was eating dates, and dates and almond butter, late at night right before bed. No, no - no eating before bed. We have a whole bunch of timing rules we'll share that you can share with your patients. We have check lists and all.

Hormone balances that we are going to study. There is insulin, there is leptin, there is thyroid, and there is cortisol and growth hormone. It's not just about insulin; these hormones need to be balanced as well. The good news is that the things we are going to talk about for balancing the insulin are going to help a lot of these others.

One of the things people don't realize are that insulin and growth hormones, they are not friends. They don't like each other; they don't like hanging out together. So whenever your insulin goes up, your growth hormone goes down. Growth hormone is needed for what? Growth and repair, building lean muscle mass.

Insulin is good for building fat. If you can't get the sugar into your cells, it's going to do fat. So when you are eating a lot and eating frequently, you inhibit growth hormone, which kind of thwarts fat loss and lean body building.

Let's talk about some of the things we are going to talk about in detail in the nutrition part, - reversing insulin resistance, avoiding trans fats, increasing DHA, decreasing the omega 6:3 ratio.

We give you tools for all of that. We give you sources, improve minerals, chromium, magnesium, zinc, improve your B vitamins, getting people doing resistance exercise and manual labor, burst training. Avoiding, of course, the sugar, the processed foods, the starches, the fruit juices, and the sodas. All those things we listed in the beginning that are causing this problem. Reduce stress, and make sure they get enough protein and protein absorption. We'll work on those kinds of things as well.

Some rules - I'm just throwing these in here. This is just to give you an overview, but these are some of the things we are going to be focusing on and helping you to get into place with your patients and clients.

Don't eat after dinner, eat only three meals a day - sometimes that needs to be broken. Allow 4 to 6 hours between meals - really critical for leptin and insulin and growth hormones. Eat to full, don't over eat or under eat. That takes some time. You are going to have to be coaching people and helping them to get to the point where they do eat enough without over eating so that they are not starving three hours later.

Eat slowly and calmly. That affects the stress, digestion, protein absorption, etc. Practice breathing and appreciation before each meal. One of your bonuses in the program is Transforming Stress. It's a 30-day Transforming Stress program, and we are going to be making that available to the general public at some point in time.

Then starting your day with protein. It doesn't mean bacon and eggs. You get these insulin resistance books and read them, and the diets are awful. They are having people do just a lot of meat and a lot of dairy and a lot of butter, and very little in the way of vegetables. Vegetables are our friends. Green leafy vegetables are our friends. You can do an insulin resistance program as a vegetarian or vegan, or you can choose to include animal products. It's really important to be able to adapt to who your client is.

I know there is a really good book by Dr. Mark Hyman, The Blood Sugar Solution. All the recipes, they are not vegetarian friendly. They have meat in just about all of them.

All of our recipes are vegetarian friendly, with the optional addition of meat for those people who need it or want it.

It's important to get rid of gluten. We'll go through this in very great detail, because gluten affects autoimmune attack on the pancreas. There have been a number of studies that show that diabetic patients get worse with eating gluten, and that insulin resistance worsens with eating gluten. We'll go through that in more detail.

Let's go and summarize with the three most important nutrients. I usually like to start people with three. So the top three I have people start, when I first work with them - before I even have them start to give up the sugars and give up the foods. These are going to help to balance those receptors so that the sugar starts to get moving into the cells more and the cravings go down.

Chromium - polynicotinate form is the one that's been most studied. 400 micrograms twice a day. Of course you may adapt that to the size of the patient. It might be a little more in a very heavy person, it might be less in a very light person.

Magnesium citrate, glycenate, or natural calm - we have a magnesium loading document to teach you how to train your clients to figure out what their ideal dose of magnesium is.

DHA, usually is between 350 and 500 mg a day. Some people a little bit more. Usually use algae oil-based. There are a bunch of documents on the omega 3:6 ratio - spreadsheets and a lot of information for you.

Then zinc - 30-60 milligrams a day. I prefer liquid form because it gets absorbed better. Liquid is super important for the protein absorption. If you don't have enough zinc, you don't make enough hydrochloric acid. If you don't make enough hydrochloric acid you can't absorb your protein or your minerals. You might know all that already, but we are going to make sure that you have all this laid out in a protocol that you could teach people.

Then finally, activated forms of B vitamins. I prefer liquid, again, because they get into the system. When I say activated forms, it's the forms that your body can use without having to do a lot of work on it. While we are dealing with these people a lot of them will have this compromise, their digestion is compromised. So you want to give them the most activated, easy-to-absorb form of things as possible.

These are just a few other important nutrients on the site. We have a PDF file which is a whole list of the different nutrients, the reasons behind it, the different herbs, the doses, and some sources where you can get them.

You need to replenish the nutrients with food. A lot of programs out there are the functional medicine stuff, which is awesome, except it overlooks a lot of the foods and how to get people to be able to incorporate these foods. Just eat a healthy diet is not enough; eat a balanced diet is not enough. You need to be teaching people how they get more green leafy vegetables. You need to be offering them recipes, and we have a ton of recipes in the program - sea vegetables, chia seeds, flax seeds, hemp seeds for omega 3s, pumpkin seeds for zinc, Brazil nuts for selenium, protein powders for people who are protein deficient. When they don't have good stomach acid you need to give them highly absorbable forms to jumpstart their system. For people who are not vegetarian, who prefer to have lean, organic, free-range animal protein or fish - you can use that in small amounts to get your protein, but make sure that you are taking adequate enzymes and stimulating hydrochloric acid because you need to be able to break it down.

Thank you so much all of you for being here, it's been my joy. I love talking about this stuff.

The more the statistics go down, right though those millions of dollars that are spent on diabetes care, and all those pounds and pounds to hundreds of pounds of sugar that are consumed - that's going to go down. Those sugar industry people are going to have to find something new. They are going to have to go into supplying herbs and greens and things like that. You'll see them supplying green powders instead of sugar after a while, because nobody wants the sugar.

That's what our job is, all of us on this line and people listening afterwards. We are educating people to just question the norm, question what's in society. Take a step beyond that. I applaud you all for being here. You are all making a difference in people's lives. It's really, really valuable. Thank you so much.