Introduction to Cancer and Metabolic Health

Well, it is always such a cool thing to get to chat with you. Cyrus Khambatta. you are PhD behind your name, which means that you are very, very, very, very smart.

And I can attest to this. thank you so much for having me here today. I love I love chatting with you. And, you know, I hope that we can help as many people understand the connection between high glucose hyperinsulinemia and the risk for cancer.

Yes. So. So tell me a little bit about that. So you have, it is a fact that people that are dealing with hyperinsulinemia or diabetes or, you know, the spectrum of that are more at risk for cancer. Now.

Why is that? Yeah. So maybe let's start at the top here because, when when we're talking about the development of cancer, like the entire summit that you're putting on here is about, you know, how to reduce your risk for the development of cancer or how to reverse specific types of cancers once they have already started.

Okay. So in the world of metabolic health, I mean, I've been in this world now for almost 20 years, and what I have come to learn over the course of time is that the inflammatory processes that initiate the cancer process are also very similar to the inflammatory processes that initiate the heart disease process and the atherosclerotic process and the insulin resistance process that then sets the stage for prediabetes and type 2 diabetes.

So all of the inflammatory processes have slightly different players, slightly different types of cells, slightly different insulin. sorry, slightly different receptors, different metabolite sites, but all of them are driven by inflammation.

Inflammation is literally the name of the game that sets the stage for chronic diseases. you know, at any moment in time or into the future. So, there's a strong connection between being overweight, living with insulin resistance, and we can go into a lot of detail about exactly what that means.

But being overweight, living with insulin resistance, and the insulin resistance itself can drive the process of tumor development. And I think that that's something that, you know, I don't see many people talking about it, and I don't see very much of, you know, a focus on the developing, like the, the, the commonality between prediabetes, type two diabetes, as well as cancer.

But the two of them run so closely with one another that they almost can't be separated. So really, what drives the, the, the process of developing prediabetes and type two diabetes is this thing known as insulin resistance.

So if we kind of start at the beginning and try to figure out, well, what what what do I mean when I say that, insulin resistance is actually a process that is driven primarily by the consumption of excess dietary fat.

And I know as soon as I say that people, people be people come down with their like, what are you talking about? You know what you're talking about, right?

It's not about fat. It's about carbs. It's about carbs, about sugar. Right. And, it is a true statement that when you consume refined carbohydrates that are.

How Dietary Fat Drives Insulin Resistance

Yeah, you know, carbohydrates that have been broken down and effectively refine to, small monosaccharides, those can definitely drive an insulin resistance process inside of your liver primarily, as well as in your muscle.

No question about that. However, the consumption of excess dietary fat, particularly saturated fat, is more effective

at creating the insulin resistance process inside of your liver muscle.

So the way that this works is that in nature, when you consume foods that are high in fat, those foods include white meat, red meat, chicken, fish, dairy products, oils, nuts, seeds.

Avocados, coconuts, olives. Okay. So they come from both the plant based world as well as the animal based world. The animal based foods tend to be more rich in saturated fat than the plant based foods, as a general rule, but saturated fat is present in both the plant based world and the animal world at just little bit more than less and less than plant.

That being said, when you're consuming these fat, rich foods, fat is actually, stored in a triglyceride molecule. So the triglyceride molecule is actually the storage form of fat in nature.

It's a storage form of fat inside of humans, inside of mammals, as well as in an avocado or as well as an RC. So what it triglyceride really means is that you take you take one molecule called a glycerol.

And I'm just going to, you know, fashion it here with my hand. So so glycerol is basically a linear molecule. And then you have three fatty acids that are attached to that to that glycerol molecule.

So that's why it's called a triglyceride okay. Tri meaning three fatty acids. Glycerin meaning glycerol. So the three of them are attached to each other.

And this triglyceride is basically a stored form of fat that can persist for very long periods of time. Okay. The triglyceride is what you consume. So when you're eating an avocado or you're having some red meat or some white meat or some oil, you're actually consuming triglycerides, primarily.

The triglycerides basically travel down your esophagus. They get inside of your stomach to interact with the acid rich environment of your stomach. That's mainly containing hydrochloric acid from the walls of your stomach.

And at that point, the triglyceride molecule starts to get broken apart and sort of pre digested. Eventually when it gets inside of your small intestine, which is the next compartment in your small intestine, that's when digestive enzymes from your liver and your pancreas and the walls of your small intestine itself start to break apart.

The glycerol from the three fatty acids. So the triglyceride is then broken at that point. And the digestive enzymes literally cut right along the glycerol backbone to liberate those three fatty acids.

Those three fatty acids are then absorbed through the walls of your stomach. I'm sorry, absorbed through the walls of your small intestine. And they're put inside of these little particles known as kilo micron particles.

These kind of micron particles are like little spaceships. There's trillions of em floating through your blood, and they become more abundant in a post meal state of postprandial state.

So the fatty acids are absorbed through the walls of your small intestine. They're put in these kind of micro particles. These kind of microparticles are in circulation and they can affect any tissue.

The purpose of the kilo micron particle is very, very straightforward. The kilo micron is there to deliver fatty acids to tissues. That's it. It's also there to deliver cholesterol to tissue.

So it's got two pieces of cargo. And both of those cargos have to go elsewhere outside of your digestive system. So the kind of micro particle absorbs the fatty acids.

And it also absorbs cholesterol if present inside of your diet. And then it transports them elsewhere. Well, where's elsewhere? Elsewhere it can be your adipose tissue.

It can be your liver. It can be your muscle tissue. Those are the three primary targets of fatty acids. So these fatty

acids and cholesterol end up going directly to your adipose tissue as a sort of primary place.

And when these kind of microparticles get to your fatty as excuse me, get to your adipose tissue, they start to offload their cargo and they start to give the fatty acids to the adipose tissue, which is a good thing because the adipose tissue is actually very safe place to keep fatty acids for long periods of time.

When those fatty acids leave, the cattle can't get inside that adipose tissue. They then surprise, surprise, get locked up again as a triglyceride, because again, a triglyceride is a stored form of fatty acids inside of mammals and in nature.

So they get put as a triglycerides stored in your adipose tissue for longer. It's a very good thing. Safe place. That's where they should be. The problem results when the fatty acids from the kind of Omicron particles end up getting inside of your liver and muscle tissue, and your liver and muscle are designed to be able to store small amounts of fatty acids.

And again, when they receive fatty acids from the kind of micro particles, they store it as triglycerides. So they take it up, they lock it up as a triglyceride, and they hold on to it for some period time as well.

Okay. And that's okay because that's how they're designed. They're designed to store small amounts of fatty acids as a triglyceride molecule. But when you're consuming a diet that is very rich in fats, particularly saturated fat, what is happening is that your liver and muscle become overwhelmed with too much fatty acids.

And as a result of that, the the storage capacity of the liver and muscle cells begins to get stressed. So they're supposed to be able to store, let's, let's say, this much inside of the lipid droplet, inside of both of those types of cells.

But over the course of time, that lipid droplet can grow and grow and grow and get to be very large. And when that happens, that's the beginning of the inflammatory process, right?

That so the inflammatory process is triggered by the excess uptake of fatty acids from the kind of microparticles inside of liver and muscle. And as soon as that happens then insulin signaling gets disrupted.

Now why does insulin signaling get disrupted? Well, a cell is constantly responding to its external environment. Always, always, always, every second of every day from the moment that you were born until the moment you are dead cells inside of your liver and your muscle, your thyroid gland and your brain, they're always paying attention to what's happening right outside of them.

And they want to understand, like what is in the blood, what is in the extracellular fluid, what is the concentration of sodium, what is the concentration of potassium?

Is there enough fluid? Is there not? Is there insulin? Is there glucose. And they're always paying attention. So in this particular situation, when there's an excess uptake of fatty acids from the blood, from the kind of micro particles, the cells in your liver and muscle, they respond by saying, whoa, whoa, whoa, hold on, hold on.

I didn't ask for all this. This is beyond my biological design. I'm capable of storing small amounts of fatty acids. You just put a lot into me. And now I'm in a very high energy state, okay? I'm.

In fact, I'm in such a high energy state that I'm going to block all excess energy from coming into this tissue. I'm going to try and block more fatty acids as my primary target.

And then I'm also going to try and block amino acids from coming in and I'm going to try and block glucose from coming in. And if I can effectively block all three of those different types of fuels from coming into the tissue, then I'm not going to go into an even higher energy state because I don't necessarily need to be there anymore.

Right? So the way that liver and muscle cells can actually slow down the uptake of all of these different types of

fuels is not by individually trying to block each one of them, they just go straight to the source and they say, hey, insulin receptor.

Insulin is the single most powerful anabolic hormone in the entire human body. Insulin can do more fuel storage and growth than any other hormone. Period. Out of story.

So if you're a cell and you're trying to block stuff from coming inside, just block insulin. That's it. So as you block insulin, then all of a sudden fuel storage is decreased significantly.

So what these cells do is they literally initiate the insulin resistance process, the insulin rejection process. So that way when insulin comes around it goes knock knock, knock I got some stuff in the blood. Do you want to take it up?

I got glucose, I got amino acids, I got fatty acids. Do you want it? Those tissues can say no no no no no no no, I'm not paying attention to you right now because I'm playing insulin resistance.

I'm I'm trying to protect myself from absorbing any more fuel. I don't want anything else. And as a result of that, insulin goes. Well, I guess I can't really talk to you.

I'm trying to signal you, but you're not listening. And so as a result of that, then glucose ends up getting trapped inside of your blood. So what's very common for people who are eating a high fat diet who have initiated this insulin resistance process, and that liver and muscle is that they're eating a high fat diet for breakfast and for lunch, for dinner.

And then they'll have some steak and eggs and oil and chicken and bacon and whatnot. And now I love consuming these foods on a consistent basis.

Hyperinsulinemia, Cancer Growth, and Risk

And then at some point in the near future, it could be a couple of days later that might be like, you know what, I'm going to eat a banana. So they open a banana and they try to eat a banana, which is only about 25g of carbohydrates, not a very large carbohydrate load.

But as soon as that carbohydrate becomes present inside of that adjusted system, the glucose from those carbohydrates tries to get inside of liver muscle and then liver muscle doesn't.

No no no no no no no no. Not happening. I got a whole bunch of this stuff inside of me. I'm not paying attention to insulin. And as a result of that glucose stay out.

So glucose gets trapped in the blood. So people who are eating, you know, either ketogenic diet or high fat diet in general end up experiencing that as soon as they eat a small amount of carbohydrate, all of a sudden the glucose is super high and what most people do is they blame the banana.

They say, oh, manager, bad for you, you shouldn't eat bananas in the first place. It's just sugar. Potatoes are bad for you. White rice is bad for you.

You know black beans are bad if you don't eat any of that stuff because it's just sugar, right? But in reality, they're confusing the messenger for the actual problem.

The problem was the excess consumption of fat, and the messenger was glucose that basically got blocked. Okay, so if we put all this whole story together and I'll stop talking here in a second, but the whole story here is that the excess consumption of dietary fat can trigger excess uptake of fat inside of liver muscle, which then triggers insulin signaling problems.

And as soon as insulin signaling is affected negatively, then the net result of that is that glucose gets trapped in

your blood and blood glucose concentrations go up.

Okay. So the last piece of this puzzle is that if your glucose concentrations begin to climb over the course of time, well then guess what? Your pancreas now jumps in.

It says, hold on a second. My job, one of my responsibilities is to secrete insulin from the beta cells. Okay, I have a very small population of beta cells that makes up about 1% of my total pancreatic mass.

Okay. And that 1% of beta cells is responsible for secreting. That's one of the only type of cell in the body that can manufacture insulin. And when you manufacture insulin, or if I if I get those cells to manufacture insulin to put it into the blood, guess what's going to happen?

That insulin is going to effectively overpower the liver and muscle cells to taking up glucose. So if a little bit of insulin didn't work in bringing glucose into those cells, well, then the pancreas is about to say, all right, fine, here's the deal.

I'm going to make more and then I'm going to make more, and then I'm going to make more. And it goes into what's called a hyper in so many mixed state, meaning that you effectively are forcing your pancreas to secrete excess insulin in order to overpower the insulin resistance process inside of your liver and muscle.

So the hyperinsulinemia state is really where so many things can go wrong, particularly for cancer. And this is all part of the same syndrome. Again, high fat diet, excess deposition of fat inside of liver muscle drives insulin resistance drives high glucose drives, hyperinsulinemia.

And then that hyperinsulinemia process is actually what can then trigger tumor development in many tissues down the road. Am I making any sense? Yeah.

I mean, yeah, you're it's funny how you're you're presenting it because you're you're answering my question before I'm able to ask it, you know, gets you. You're just going with my head, you know.

Well what about this then. And then your next, next point. So yet tie this. You know, we talked about them the inflammation you know and and that's where we started.

Tell me why the hyperinsulinemia is so important to understand and to address in relationship to cancer. Yes. That's that's the the right next question to ask.

Okay. So Hyperinsulinemia is a very dangerous state to be living in, especially for long periods of time. research has actually shown that living in a hyperinsulinemia state is the single most the single best predictor of cardiovascular disease into the future.

So if you turned to me and said, hey, Siris, what's my risk for, a myocardial infarction or a heart attack into the future? One of the things that I could do is measure your how hyperinsulinemia you are.

Well, what is your concentration of insulin in your blood, in the fasting state and in the post-meal state right here, right now? And what research has demonstrated is that if you if you classify whether or not an individual is in a normal glycemic state or, sorry, a normal insulin state today, or whether they're secreting an excess quantity of insulin, then you can predict five years into the future whether or not they're at advanced risk for the development of heart disease.

It's it's fascinating research, right. In addition to that, when you are living in a hyperinsulinemia state that can also drive the formation of tumors in various tissues.

And the reason why that happens is because there's actually two different types of insulin receptors. There's what's called an alpha isoform and a beta isoform.

So there you can think of them as basically being like, you know, two two variations of the insulin receptor. It turns out to be the beta form of the insulin receptor is the one that's predominantly expressed inside of liver and muscle, okay.

And this is the form of the insulin receptor that's actually required and useful at uptake in glucose. And it's talking to insulin and then initiating glucose uptake.

So in other words the beta form of the receptor is a good form of the receptor. That's what we want okay. You want expression of that inside of your liver muscle.

The alpha form of the insulin receptor is predominantly expressed or it should say overexpressed in cancer cells and in tumors. So when you are living in a hyperinsulinemia state that the presence of excess insulin is actually a signal that drives the, the, the mighty genic process or the the proliferation of already existing cancer cells.

In other words, if there's a cancer cell that's living in a hyperinsulinemia environment, the presence of excess insulin can then tell that cancer cell to uptake fuel, which can then fuel its growth.

And then it can also, tell it to replicate so that it is now making a copy of itself. And then making a copy of itself again. And then before you know it now, a small number of, of, cancer cells have been replicated multiple times to create a larger mass known as a tumor.

And and like you said, I mean, insulin is like one of the strongest growth signaling, you know, and and as we know, cancer is as excessive growth, or I wouldn't say that it's cells that are replicating faster.

It's just cells that don't stop replicating. Yeah, yeah yeah. Yeah. So going back to what we were saying, it's a perfect segway. what I said earlier is that, cells in, in all tissues in a normal state are always paying attention to their extracellular environment.

They want to know exactly what is the concentration of various different metabolites, and then they're responding to those metabolites by, you know, adjusting their behavior slightly in order to make sure that they're in, what is known as a homeostatic state.

Right? Cancer cells don't act like that. Cancer cells, are capable of acting in a way without necessarily paying attention to their extracellular environment.

And so sometimes extracellular signals can fuel cancer growth, and sometimes extracellular signals can actually slow down cancer growth. And that's a good thing.

But cancer cells by nature have developed a way to be able to act somewhat autonomously. And as a result of doing that, they can then replicate, proliferate, and then make copies of themselves and then do it over and over and over again, and then form a large mass that can then eventually metastasize and take over another tissue.

Right. So it's very important for us to understand that cells are, under normal circumstances, should be paying attention to the outside environment. But cancer cells don't always do that when it comes to insulin in particular.

Insulin is such a powerful growth signal. It is such a powerful growth hormone that when insulin is elevated, it drives it literally fuels the development and the progression and the proliferation of existing tumor cells.

And that can be a very dangerous process. So what some of the research actually demonstrates is that one of the most powerful things that you can do if you have been diagnosed with cancer, if you're at a risk, you're at risk for developing cancer is do two things effectively that happens simultaneously.

Number one, if you are overweight, reduce your body weight to your ideal body weight.

Body Weight, Body Composition, and Visceral Fat

That is absolutely paramount because the higher your body weight is, the more overweight you are, the more hyperinsulinemia you are likely to become. The two of them do not always travel together, but they tend to move together.

So number one, reduce your body weight simply by reducing your body weight. Your insulin production will fall and as a result of that, you can go from a hyper insulin mixture into a normal insulin.

The next day. And as a result of that, you can then shut down. Or you can slow down the progression of cancer, which can then have a profound effect and maybe even reversing the existing cancer process.

So, if I'm hearing you right, I mean, here we're, we're. Eating. Food that is kind of high in and kind of an energy source. And, and our, you know, our tissue are just have too much stuff to produce energy with.

And they are kind of blocking. Hey, you know, we got enough I got to slow down the influx and then create that insulin resistance. Muscles, liver. they don't have a choice because the pancreas is increasing the insulin production and just kind of driving, driving, you know, the triglycerides and into those tissues.

So to me, then it sounds like we are it is kind of an excess of of energy substance. And so kind of in my profession I, you know, when people come in and they deal with something like candida or fungus or, and, and they eat food that just kind of a lot of sugar, a lot of things that just and the body, the tissue really can't handle all of that.

So it will not the immune system will not go after the fungus, because the fungus serves a role, you know, in metabolizing all that excess sugar. So we would they tried to take herbs to kill.

They try to do, you know, medication to kill, but they can because, you know, the the fungus serves the role and the and the immune system kind of. Hey, we we can't deal with the sugar.

It's very stressful. You know, I let the fungus do it. So I'm wondering, and this is kind of a hypothetical question, I'm wondering if the the cancer cell because as well just talk about cancer being kind of like a survival mechanism in a way.

So I wonder if that's the body's way of answering that. Hey, we there's there's too much energy source that we cannot process and we cannot deal with.

And, and we know that the cancer cell is very inefficient in how it produces energy. You know, it creates like two ATP instead of 36 ATP, like a normal cell.

Would you know how to glucose. So we're going to let this tissue kind of deal with this. All this excess energy substance. And it's going to burn it in a, you know, a much less efficient way.

That way we can kind of go through this, the stuff, you know, this energy stuff. And we can then also, and the tissue because we kind of keep feeding them, you know, we need to produce more of these cells in order to be able to process, you know, these, these triglycerides and, you know, all the things some some wondering if it's a little bit of a kind of a, a way for the body to deal with what, you know, the influx that it can deal with.

Yeah. So I never actually thought about it that way. But as you were explaining this, I was almost envisioning like a sponge in my head. And but basically what you're saying is that you have a small sponge and then you end up with a small sponge inside of an environment that has excess fuel, excess glucose, excess triglycerides, excess fatty acids, excess cholesterol.

And when cells, you know, normal, you know, cells inside of your liver and your muscle are not capable of taking up all of those excess nutrients. Well, they have to go somewhere and they end up going into the sponge, aka the cancer.

the the tumor. And then the sponge ends up increasing in size and complexity in order to sort of like take up those

excess fields. the one thing about that, though, is that you and I both know that the tumor development process is like a highly inflammatory process.

Right? So it's like if that's the reaction from, you know, a tissue to say, hey, I need to put this excess fuel somewhere. Why don't we go create these oncogenic cells that then turn into cancer cells, right.

It seems like okay, fine, that might get the job done. But then if ultimately that's going to hurt the tissue that it was, you know, that if it's going to hurt the tissue in which it resides, then it's not in the tissues.

Best interest to go create that cancer process. Right? So yeah, I don't know the answer to your question. I think it's actually a it's a very it's a it's a great thought and one thing that I do want to go backwards and say is that, the insulin receptor, again, there's two different forms.

And, and sometimes there's the beta and the alpha. And the beta again is the one that's expressed in liver and muscle predominantly. That's a good form.

Then there's the alpha which is predominantly expressed inside of tumor cells. So research actually showed that the alpha form of the cancer the receptor is overexpressed in breast tumor.

And that skin or breast tumor such as the breast cancer. And then preferential expression of the insulin receptor alpha isoform has been demonstrated in cancers of the breast, lung, colon, ovaries, and endometrial, as well as thyroid gland.

Okay, so it's not like the alpha isoform of the insulin receptor is just present in only one location in your body and is literally a type of it's a it's an isoform of the same receptor that can then create tumors in multiple different tissues.

And so it's really important to understand that this is a global effect. Right. So ultimately what you have the opportunity to do as an individual is say how am I going to control my diet and how am I going to control my lifestyle.

Because that is the single most powerful collection of tools that you have at your advantage in order to accomplish multiple things simultaneously. Number one, achieve your ideal body weight.

And this is so incredibly important, absolutely critically important. But and just by achieving your ideal body weight, you can reduce not only your risk for the development of cancer, but also of heart disease and also of type two diabetes, and also of prediabetes and also of many autoimmune diseases.

So just being at your ideal body weight and staying there for a long period of time, hopefully the rest of your life can be one of the most powerful things that you have in your disposal to be able to help control and six and significantly reduce your risk for multiple chronic diseases.

And so, in addition to that, a lot of people are then asking, yeah, so what what are some of the labs that I can run and what should be the appropriate numbers?

You know, we talked about insulin, talked my glucose, talked about, triglycerides. Yeah. So so what if I'm, I'm to measure these things? You know, there's some of the ideal numbers that I should be looking for.

Okay. So that's a great question. So there's many different biomarkers. So here's what I recommend if you're listening to this right out of pen okay. And write these things down because these things matter okay.

So as far as your glucose is concerned okay. When you go to the doctor you can get you can get multiple measurements of your glucose metabolism. the first and easiest is your fasting glucose.

Your fast glucose is literally a measurement of what is your glucose at that moment in time during a blood test. And it is a measurement of what how much glucose is in circulation in the fasted state.

Hopefully at least eight hours of fasting. Okay. First thing in the morning, no food. The number that you're shooting for is somewhere between 70 and 100.

Okay. And then the units of that are called milligrams per deciliter. So just say I'm going to go for somewhere between 7100. If I'm in that state then I'm in a good place.

Okay. If you go a little bit above 100, if you go up between 100 and 124, that means that you're in the pre-diabetes state. And if you're 145 or greater, that means that you're likely living with type two diabetes. Okay, so that's number one.

Number two A1. See a1 see is a measurement of a three month average blood glucose okay. So it's a long term measurement of your average. Well because reading during that in that period of time ideally your A1 c is going to be 5.6% or lower.

That is technically considered not that, but if you're 5.7 to 6.4%, that means that you're living with pre-diabetes. And if you're 6.5% or greater, that means you're living with type two that.

So the goal is to go 5.6 and below. So those are the two measurements of glucose metabolism that are worth paying attention to when it comes to your lipid panel.

Specifically cholesterol triglycerides okay. There's a lot of debate as to whether or not, you know, you know, is more cholesterol good? Is less cholesterol good?

Is LDL even a measurement of cardiac risk or not? If you ask me, and if you ask a lot of people in the plant based world, because that's the world in which I live and breathe, okay, the general consensus is based off of meta analyzes in over a million people.

If you pull together data from multiple randomized controlled trials and you stick it together, you analyze what happens to people whose, LDL cholesterol, the bad cholesterol is elevated over the course of time.

There's a very clear connection between your cardiac risk and your LDL concentrations. So the rule of thumb is just like a fasting glucose. You want to keep your LDL somewhere between 70 and 100 okay.

Exact same numbers of fasting glucose. So if you can get your LDL concentration, which again is no bad cholesterol to between 7 and 100, you're doing fantastic.

If your LDL cholesterol goes from 100 to about 120 or 100 130, that means that you should absolutely pay attention to that and find methodologies using your lifestyle to reduce your LDL concentration.

Things that you can do to reduce your LDL. Number one reduce your intake of not only cholesterol because cholesterol matters in your diet, but saturated fat.

Here's the kicker okay, saturate this. That is the thing that drives the insulin resistance process. As we talked about at the beginning of the century, saturated fat is also the nutrient in your food which can elevate your cholesterol more than dietary cholesterol.

In other words, saturated fat, in my opinion, is the single most problematic nutrient in the human diet because it drives insulin resistance, it drives increased LDL, it drives, atherosclerosis, and it can drive heart disease.

Okay. So a if you can decrease your intake of saturated fat, that's going to have a profound effect on lowering LDL cholesterol level. And again, we want to get that between 70 and 100 okay.

Now there's other markers within your lipid panel your total cholesterol. My recommendation is to keep it 150 or lower and your triglycerides 150 or lower.

And then for your HDL, which is considered the good cholesterol for women, the number is between 40 and 50. And for men the number is between 30 and 40.

And so those are your sort of general markers as far as your, LDL. I'm sorry, as far as your lipid panels concerned, the the one thing that people ask us all the time is they say, well, you constantly refer to my ideal body weight.

So what's my ideal body weight? Okay. And this is actually a really good question okay. The simplest way to measure your ideal body weight is using a, is using a formula that's dependent on your height.

Okay. So when I learned this one I was actually shot. I think it's faster. So you take I'm going to I'm going to take Michael as an example here. We're going to do a calculation based on.

So Michael is male.

Plant-Based Diet Benefits and Ideal Macros

And so for a male the calculation is the first five feet of height is equal to 115 pounds. And every inch after five feet is equal to 5 pounds. So it's 115 plus 5 pounds per inch.

So Michael, how tall are you? I think you're seven foot six. Yeah. That's that that's what I envision in my head when I play basketball. But, I think you're in reality, you're six foot two.

Is that right? It's two. You're absolutely correct. Yes, six foot two. Okay. Yeah. So what I'm going to do is I'm going to take the number 115. So that's 150 pounds for the first 5 pounds of height.

And then you are now 14in over five feet. So I'm going to take 14 and multiply by five. And 14 times five is 670. Yes. Yes 70. Yeah. Yep. 70 plus 115.

So if I take some people 180 I end up with 185 pounds. So according to this calculator your ideal body weight should be 185 pounds. Now you tell me, how much do you weigh?

I would say I'm, I'm about 185. About how never perfect this guy's textbook. I like that you can take this number and you can add, you know, up to 10 pounds at the maximum is my suggestion, up to 10 pounds of the maximum.

And that's going to give you a very good indicator of what your sort of ideal body weight range could be. So in your particular example, I would say that you could be somewhere between 185 185 pounds.

And technically speaking, you would have a very you would be at the lowest risk for development of Parkinson's in the future. That's a good thing. Now, if you're female, what you do is you take 105 pounds for the first five plus five, and then you add 4 pounds per inch for every inch there after five feet.

So if we had a female in front of us who was call it five foot six inches, okay, that would mean that she would be 105 pounds for the first five feet, and then we would take six and multiply that by four.

Six times four is 24 plus 105 gives us 129 pounds. Okay. If we add up to 10 pounds for that, that's 109 139 pounds. Okay. So you as the listener can use this formula to calculate what your ideal body weight should be.

And if you're over that ideal body weight, Cyrus is saying, let's bring your ideal body weight to within that range, okay? And just by doing that, you can significantly reduce your risk for many chronic diseases, including cancer, hyperinsulinemia, pre-diabetes, type two diabetes, heart disease, atherosclerosis and beyond.

And, if you're underneath that target body weight range, it's definitely smart to try and increase it to get into that body weight rate, because people that are living in a, in an underweight, people who are living underweight for a significant time and up with reduced bone mineral density, which can lead to osteopenia and, or, you know, sarcopenia into the future.

And they also have the reduced muscle mass, which can lead to you know, problems down the road with, muscle wasting. So the goal is to like, calculate that range, write it down, stick it on your fridge, look at it every single day and try and get into that range, because that right there can be one of the most powerful things that you can do to maximize your long term health.

And, obviously you can have two people same way, you know, one being more muscular versus the other one that's less muscular. So does that play a role in optimum health as well?

It certainly does. It certainly does. So effectively, what you're talking about is two people that have the same body weight but have a different body composition.

Right? So person A, let's say person A has a body fat percentage of let them go backwards. Two men that are 165 pounds each. Okay. Man, 165 pounds. His name is Jonathan.

Jonathan has a body fat percentage of 10%. Okay. Then you have man B who is 165 pound. His name is Ernie. And Ernie has a body fat percentage of 20%. So he's effectively like twice as fat, if you will, are twice as, you know, double the body fat percentage, even though they both weigh the same amount.

Okay. So, the first gentleman, Jonathan, is going to be in a much more metabolically advantageous state because he's going to have a higher proportion of muscle to fat on him, and that's going to limit the amount of information that's present that affects tissue.

Okay. Ernie is going to be in a little bit less advantageous state because he's going to have a higher proportion of body fat. And that right there can be an affront to play process that could drive you some resistance inside his adipose tissue and other tissues.

Okay. When it comes to body fat in particular, there's also multiple locations where body fat can can reside. Okay. So if I were to ask any of you, I say, hey, point to where fat is in your body, okay?

When I ask people this question, a lot of people point directly to their stomach. You see, you get fat right here in my stomach, right? And that is a true statement.

Every single body, every single person has fat inside of their abdomen. Okay? It's called abdominal fat or visceral fat. But in addition to that, there's also fat inside of your neck.

There's fat inside of your cheeks. There's fat inside of your your breast tissue. Even for men, there's fat inside of your, you know, surrounding your tricep muscle.

There's fat surrounding in your butt, in your quadriceps, in your in your calf muscles. It's all over the place. It's a distributed tissue, okay. And there's two different types of depots.

The one depot is called your visceral fat, which is the fact that you store inside your abdomen. And then the second type of fat in the second depot is called your subcutaneous fat.

And the subcutaneous fat literally means under the skin, okay, subcutaneous. And so the subcutaneous depot is much less inflammatory than the visceral depot.

In other words, the fat that sits inside of your abdomen is, without question, the most metabolically dangerous fat on your body. So if you are a person that has a significant amount of, adipose tissue inside of your abdomen, do everything you possibly can to try and reduce that using your lifestyle, using exercise, using intermittent fasting, using, in my professional opinion, a plant based diet.

And when you do that and you can really trim down a lot of visceral fat that you have inside of your abdomen, that right there can shift your body composition towards less fat, less problematic fat.

And that right there can help you reduce your, chronic disease risk. The love it. So that the next step I mean, we've been having, you know, towards diet.

We talked about, you know, insulin resistance and how important it is to control that in regards to cancer because insulin is such a high growth stimulator and you have the, the, the alpha receptors, insulin alpha receptors that are highly expressed in on, on cancer tissue.

So if you have a lot of insulin there's going to be a lot of stimulation of growth. You know in those those tissues. So the key then becomes obviously we want to bring down the the amount of insulin that the pancreas is, is pumping out in response to, excessive triglycerides or excessive kind of, saturated fat.

So in your gut, because you've lived this, I mean, this this is not just something that's theoretical for you. This is this is you. You've lived this story, you know, because this, this these are things that you battle with, you know, with, you know, because of where you're coming from and what you've dealt with.

so what should what should a perfect diet look like for you in order to be able to correct, you know, this this issue. Great question, great question.

So you're right, I didn't really give a full intro, to begin with, but short story here is that I had been living with three autoimmune conditions, and I got diagnosed with three out of new conditions back in the year 2002.

So that was, you know, 20 plus years ago. first one Hashimoto's hypothyroidism. Okay. decrease thyroid hormone output number two, alopecia universalis, which is just scientific code for no hair.

I used to have hair. I used to have eyebrows. I used to have eyelashes. I used to have nose hairs. Your hair. I used to have, you know, facial hair, chest hair, I got nothing.

All of that fell out. That's a 100% autoimmune condition. And then the third is type one diabetes. So I got diagnosed with all three of those within a six month period.

And I was like, wow, this is crazy. I don't understand what's going on. Right? So after living with all three of these conditions for a for a full year, trying to eat a low carbohydrate diet to control my blood glucose in particular, my energy levels were low, my insulin use was climbing, my carbohydrate tolerance was very low.

I became anxious, I became depressed, I couldn't exercise, I was constantly in pain. My joints hurt, my muscles hurt. I was like, this is not right. I switched over to eating a plant based diet.

When I did that, it was like wildfire. I experienced a significant increase in my energy levels. Right after that, my glucose concentrations came down.

My fasting glucose down tells me about it. Was that insulin use got cut by 40% within the first month of living. If not eating a plant based diet, I was more hydrated.

I could sleep better and excited about my health came down significantly. I mean, it was a completely different world and literally felt like I took a like a charger and stuck it into a wall socket.

And I was like, whoa, I got all this energy. This is incredible. This is all I want to feel right? So since that time, over the course of the next 20 years, I found myself back to graduate school to go get a PhD in trying to understand what was happening inside of me.

And in that process, I started to realize that I'm just there's nothing special about me. I'm just a guy that happens to be living with type one diabetes and two other autoimmune conditions.

But the transition that I made from eating a predominantly animal based diet to a plant based diet had such a profound impact on my health. But oh, by the way, there's also 100 years of research dating back to the 1920s that

documents exactly how powerful eating a plant based diet was, and continues to be.

So to answer your question, what is the ideal diet composition? Okay, a lot of studies have tried to answer this question, right. A lot of studies have tried to figure out, well, you know, okay, fine.

Eating more plant based material is generally considered to be a good thing for optimal metabolic health. Right. But how much is 30% okay. It's 50% of your diet okay. Is it 70%.

Do you have to be 100 or do you have to be a vegan in order to make this work? And the answer is from a lot of research that's actually published by Harvard, by Walter Willett.

they've actually demonstrated that you do not have to be eating 100% vegan diet in order to get incredible benefit from the plant based world. But if you're eating something, you know, you're eating a high plant intake, something like 80 to 90% of all of your calories that are coming from fruits and vegetables and legumes and grains, as well as green leafy vegetables and mushrooms and herbs and spices.

If you can get most of your calories from those sources, and you still choose to eat a small amount of dairy or white meat or red meat or fish, that's okay.

You're going to get incredible metabolic benefit from just doing that. If you choose that you want to become a 100% plant based eater, like I made the decision for myself, you can push it a little bit further and you can improve your overall metabolic profile, right?

So the choices yours. I'm not telling you to be 100% vegan. Nobody necessarily is. But again, the goal is to be as plant strong as you can be or as plant predominant as you can be.

And by doing that, you can accomplish a number of things simultaneously. Number one, body weight reduction without even trying, literally without even trying.

I like to think of weight loss as just being a convenient side effect of eating a plant based diet. And we, you know, we run a coaching program for people living with diabetes and people who are trying to lose weight.

And we hear the story over and over and over again. I thought it was a joke when I first heard it, but I've heard this now from literally thousands of people who say, hey, I started eating the way that you described, and I can't even stop this weight from falling off.

I'm losing one and a half pounds and two and a half pounds per week. I'm not even trying. It's just coming right off of me. Right? And that is it. That is a good thing.

You don't have to struggle and fight with your food anymore, right? So body weight reduction. And then in addition to body reduction, all of the other metabolic dominos come into play.

Lower LDL cholesterol, lower blood pressure, lower A1. See lower fasting blood glucose, lower fasting insulin. Your metabolic profile can improve in a very short period of time, and that can persist over the course of time.

And that can give you immense metabolic benefit of time. And just a quick question about fats. I mean, because now the the way it sounded like everybody's going to be afraid of fats.

So you were talking about saturated fats. Are there good fats to include in your diet? Great question, great question. So from a lot of the research that I've done, the question is, you know what what's your ideal macronutrient profile.

Right.

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What is the percentage of your diet that should come from carbohydrate versus fat versus protein. And you know, I've studied this for so many years to try to come up with what it seems to be a reasonable answer based off of scientific research, predominantly, and then also personal experience as well.

And from what what I have learned over the course of 20 years is the ideal macronutrient profile is somewhere between 70% carbohydrate with 15% fat, 15% protein.

So I call it a 70 1515 macronutrient breakdown somewhere between that and 8010, which would be 80% carbohydrates, 10% fat, 10% protein. Okay. So if you can live within that world of predominantly carbohydrate with small amounts of that 12 ounce protein, you're going to be just fine.

Okay. And now again, you know, you don't have to become a super nerd about your saturated fat intake to try and measure every single gram that comes into your mouth, because the beauty is that when you choose, if you choose to eat a plant based diet, naturally your saturated fat intake goes down significantly.

Because again, saturated fat is found predominantly in animal foods. And as a result of that, your saturated fat intake becomes so low. For instance, sensitivity climbs and your risk for cancer also simultaneously can drop significantly.

So another way to think about it is if you want to just focus on your the total number of grams of fat to consume per day. My recommendation is to cap it somewhere between 30 and 40g of fat per day.

And this is a completely general recommendation for the, you know, average person, which is a silly thing to say. But if you can measure your fat using one of these, you know, diet logging tools or an app on your phone, and you can quantify how much fat you're consuming, if you can bring that somewhere between 30 and 40g per day, you can keep that consistent over the course of time you're going to I think you're going to experience a lot of improved metabolic benefit.

Again, lower blood pressure, lower LDL cholesterol lowering might see lower glucose. And you're going to be you're going to be loving the effects of it over the course of time.

And obviously you can I mean and that's that's why I think it was good that you kept the the shirt you have on have on obviously napkins stay fit and be kind of look healthy, feel strong, workout and build muscles on this type of diet.

No questions, no questions asked. You know, in the world of, you know, bro science, I will say, since I've been in that world for like 30 years, right.

I started out as a soccer player, then I became a weightlifter, you know, and I've done many things in that in that world. But, you know, I'm in the CrossFit world now and I, you know, I spend a lot of time in the gym on a daily basis.

And the bro science world will tell you that the single most important thing that you can put in your mouth is protein protein protein party, party, party.

Right. And it literally becomes a competition between, you know, athletes. They say, I ate 240g of protein yesterday. How much did you eat? You know, okay, 220g.

Oh, I'm eating 155g. Right. And it's like the the method, the thought process is protein builds muscle. Therefore you have to maximize your protein intake.

Right. And the truth is that yeah, protein is definitely a required macronutrient for muscle growth is true statement. But majority of the protein that you consume is not used for muscle growth.

It's actually used for hormones in the system beyond right. It's used for skin cell growth. And the epithelial cell turnover inside of your small intestine and your large intestine.

That's where protein is actually utilized, right? Long story short, when you are consuming a diet to answer your question, right, which is somewhere between 15% of calories from protein or 10% of calories from protein, even at that level, which seems intellectually like it's a very low number, even at that level, you can still be extremely active.

You can still pack on muscle if that's what you're interested in doing. And you can you can you can perform lots of athletics and be a very fit individual.

It's really not that hard to do. Yeah. Love it, love it. And yeah, for people out there I mean, you you teach people how to eat this way. you have, you know, trainings, you have coaching, you have all of that is available, you know, where can people go to find you?

Good question. Thank you. so I run a business called Mastering Diabetes, and we also have another program called Mastering Weight Loss. Okay. So those are those are two different, coaching programs for people that are interested in learning how to transition to a more plant friendly lifestyle and get all the benefits that we've described.

So if you're interested in either one of those, just go to masteringdiabetes.org. or masteringweightloss.org. and there you can learn all about our philosophy and you can, you know, sign up to speak with somebody on our team and see if you're a good fit for our coaching program.

one other thing that we have developed over the course of time is actually a, we developed tea and coffee products for people that contain a very powerful ingredient known as Indian gooseberries or amla berries.

And these Indian gooseberries, you know, some of the that's the most it's the most powerful superfood that nobody has ever heard of. And, effectively, the Indian gooseberries grown primarily in India.

And it is the single one of the most powerful superfoods I've ever read about. It can lower blood pressure, it can lower cholesterol, and it can lower glucose simultaneously is the single most powerful cholesterol reducing food ever discovered by human beings.

And very few people in their states use this and know how to get it inside their body. So what we did was we created tea and coffee products that contain the Indian gooseberry, which by the way, tastes horrendous.

It is almost impossible to eat right. So we had to find a way to make it palatable. And so we created these products. So if you're interested in getting Indian gooseberry to help with the reduction of glucose and blood pressure and cholesterol, you can just go to amlagreen.com.

So A M L A means Indian gooseberry in in Hindi. amlagreen.com, and you can check those out and if that's helpful to you then by all means let us know.

Yeah. Awesome. Yeah. you know, in regards to weight loss and diabetes, I mean, like we mentioned and, you know, our discussion excessive weight, diabetic, you know, hyperinsulinemia, puts you more at risk for cancer.

And obviously, if you're dealing with cancer, then you want to slow down that signaling process to address that and live in a lifestyle to support less weight and support better, sugar, metabolism and regulation is, is is of your benefit when you are concerned about cancer and battling cancer.

So Cyrus, thank you so much for for kind of breaking this down in a way that's understandable. And and giving you a clear vision of a truly happens in the body.

Thank you. So much. Amazing. Thank you, Dr. Karlfeldt. I appreciate, the opportunity to be here. And, you know, I think what you're doing for the world is, is tremendous.

I've seen that, the the force for good that you are in trying to teach people how to either prevent the development of cancer or reverse existing cancer processes.

And I've seen the testimonials from your website, and I've talked to you, you know, at length about the work that you do, and you are doing tremendous work.

So keep it up. Thank you for the invitation to be here. I really appreciate it. Thank you so much.