
Dr. Diana Schwarzbein: Survival of the Smartest (Part 1)

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Jonathan: Thank you. Thank you very much for coming. It is a pleasure to introduce my wife, Dr. Diana Schwarzbein, who is a, many of you may know her by reputation from her book, The Schwarzbein Principle. Diana is an endocrinologist by training and a physician who really has been very forward-thinking over the years in her approach to metabolic health. She will be speaking with you tonight on what we are calling Survival Of The Smartest.

The Survival Of The Smartest is the title of Diana's next book which we are working on together and have been for some time. I'm not going to give you any sort of a date on when it might be out because it will put us under ridiculous pressure and we can't do that for ourselves. Anyway, hopefully soon, like maybe next year, we'll be able to share the book. In the meantime, we're sharing with you this evening, thoughts and information that are part of what we're saying in the book. Your feedback, your thoughts on this are very, very much appreciated. We would like to begin, is this number right here, 857,995, anyone want to posture a guess as to what that number might represent?

Male: Heart disease stats?

Jonathan: What's that?

Male: Heart disease stats.

Jonathan: Heart disease stats. It very well could be. Over the course of some time, what this is, is I went on Amazon.com this morning to find out how many books there are on health. There's the answer. One of the things that I think that we can glean from looking at this number is, well first of all, that's a lot of books. Secondly, they don't all agree with each other. There is a tremendous diversity and divergence of opinion out there. Also, a great diversity of facts, if you will, that are represented in these books. Frankly, as we know, because we've read some of them, some of them were just plain wrong. Many of them just simply take different approaches to understanding health.

The other thing it tells us, besides the fact that there are a lot of books and a great difference of opinion, is there must be a tremendous degree of interest out there among the public, or we wouldn't have 857,995 books published because publishers aren't silly. They just wouldn't do it. We do know that a fairly common desire among a lot of people is to live a long and healthy life and they're willing to do something to make that happen, namely, seeking information, trying to understand in order to make good decisions. We start with that fact. Then, proceed to the direct recognition of the fact that in this country in which we published 857,995 books on health, we have a health problem, we have a health crisis. I think many would acknowledge the fact that we spend in this country more money per capita on healthcare than any other country, and yet, we have more health problems, more disease, more people living more years of their life in an unhealthy state.

I won't bother you. You're all obviously have been certainly very focused on health and issues around health so I won't take your time to quote statistics. We all know,

obesity is pandemic. We know that heart disease, Alzheimer's dementia, cancer, et cetera, are rampant in this society despite the fact that we spend the amount of money that we spend and we have as much information available on health as we have. In fact, how do we account for this? Well, the way that we account for it is to say that, "Look, times have changed." Think back as far back as you can conjure to how people lived and how people died. There was a time when we died from factors stemming from our external environment, right? We died from famine and we died from pestilence and storms and the elements and woolly mammoths running us down and tearing us apart and we died from infectious disease. This was the case for a long, long time. The point is we died from elements that are within our external environment.

Now, what we find is that natural selection is extinct. Think about it. Natural selection basically was the process of evolution, adaptation to one's environment that enabled one to live. It was the survival of the strongest, the survival of the fittest. Those who could adapt and change their colors or change their reaction time or change their diet, et cetera, are those who survived in their environment. Today, things are different. Today, we kill ourselves. I say that it's a little bit glib but the fact is what is happening now is we're not dying from elements that are coming from our external environment. What we die from today are the degenerative diseases of aging. We're talking about heart disease, cancer, Type 2 Diabetes, Alzheimer's dementia, osteoporosis, stroke. These are all the diseases that now kill us since we aren't run down by woolly mammoths and we're not starving to death. Again, we're talking in the developed world here.

Think about it. Where do these diseases come from? There's nothing external about it. There's a day in our lives when, take someone who has diabetes or cancer or heart disease, there was a day when that person didn't have that disease. Then, there's a day when she or he does. None of it really has to do very much with external environment. We can certainly ... We're impacted by toxicity in elements of that nature but what I'm ... The point that I'm making and Dr. Schwarzbein will certainly expound upon I think very convincingly is that where this comes from is our physiology, what I'm calling our internal environment. In large measure, we're not living up to our genetic potential. I think most people here know that there are human beings who have lived to be well over a hundred. I think 122 is the current record of a woman in France. I don't know if that's been exceeded at this point.

There are an increasing number of centenarians but not very many. The fact of the matter is that we can. It's been proven time and time again. We can live to be well over a hundred years of age. Yet, people are dying in their 60s, their 70s, and their 80s, having lived a third, 70, maybe 80% of their potential lifespan. The next question is why. The answer to why is it really comes down to, and this is entirely the focus of Dr. Schwarzbein's presentation to you this evening, what kills us is not our external environment. It's our internal environment. It is our physiology and our physiology is responding to, is a function of the decisions that we make, the habits that we have. When I talk about habits and decisions, they're really the same thing. It may be a habit. You may go to the gym every morning before you have breakfast. You've done

it every year for every day for years. That's a habit. Well, in fact, if you're doing it every day, you've made a decision to continue to do it. Let's consider for purposes of this evening at least the habits and decisions are the same thing, habits or decisions that we make and we just don't pay a lot of attention to them.

Really, what's happening is in this modern world, people do want to live longer. They're making an effort to get information, yet, they're still making bad decisions. We can just simply look back to the sources of information that are out there and how people interpret and apply that information. Those "bad decisions" undermine our health. In fact, we've moved from the point at which we are in the mode of survival of the strongest or survival of the fittest to now, it really is survival of the smartest, those people who really understand physiology, how the body works. That's why we're here this evening. The person who can really give you that information and I think some different perspectives on how the body works, hopefully stimulates some conversation and maybe a change in a few habits or decisions, whichever you want to call it, Dr. Diana Schwarzbein.

Diana: That's the first time that Jonathan has introduced me and I kind of like it. Can you hear me back there? Great. Well, I want to dig right in because I have a lot to talk about and usually, I'm very long-winded. At some point too, if I have forgotten to give you a break, raise your hand and we will have a 20-minute break somewhere in my five-hour talk. Just kidding. As Jonathan mentioned to you, we are in the middle of the book *Survival Of The Smartest*. Basically, these are the core messages that I want to impart on you not only today but in that book. I'm not making a plug for that book right now because as he said, it's not written and we're not going to put stress on ourselves, but I really want you to understand and take home today that we have a very high degree of control over our own health. That means you have control over your own health. Today, I'm hoping to teach you some of the fundamentals of how to take that control. It's never too late, that's the good news.

When I say you are your metabolism, I'm going to talk about metabolism today in metabolic terms so you understand what that is. I'll give you a hint. It's not about how thin or heavy you are. Informed decisions, obviously again, survival of the smartest. I think if you have the knowledge, you will make the right decisions and when you start reading a lot of these books that are coming out on health, it will give you a foundation to throw out some of the bad information. I mean, there might be a book that has really a lot of great information but maybe some bad information in it. I'm hoping that you're going to start to think about it in terms of metabolism and say, "Is that a good idea?"

For instance, the Paleo Diet. How many of you are on Paleo? Well today, you're going to hear about why that's so terrible for you. Actually, to be honest with you, it's one of the incentives of me writing my fifth book on health, because I went, "Oh no, not again." We're going off in the weeds. We need to get back into balance. Then, science is the ultimate truth. I am an endocrinologist which means I study hormones systems but hormone systems are all about biochemistry. Really, this is the truth about biochemistry and we're going to talk a lot about biochemistry today.

Of course, the 360 degree integrated view. What I mean by that is we cannot talk about the body and compartments. We're not going to talk about brain health and then we're not going to talk about heart health. We're not going to talk about metabolism as far as diabetes is concerned. Your body is one thing. This is about a, for lack of a better term, a holistic approach to thinking about yourself and your health. One my favorites of course is treat the cause, not the symptoms. A lot of people get symptoms like headaches and heartburn or they get conditions like high cholesterol, or maybe they end up with diseases like high blood pressure, and what are we doing? We're throwing drugs at these problems and we're just trying to mitigate a symptom without really trying to understand, "Why do I have any of these?" Even more, sometimes people get heartburn and they actually think it's no big deal. I can just take an antacid for that.

Well, that symptom is telling you that you're on fire and something else is going on in your system. We don't want to ignore the early signs and symptoms. We actually want to go back and say, "Okay, where's that heartburn coming from? Why do I have it?" There's many causes of heartburn by the way. It's not going to be one thing. Going on, disease is a continuum. You're not healthy one day and sick the next. Now, I've had a lot of patients come to see me and they basically come in and they say, "You know, I can remember when I got sick." They actually give me a date and a time. That's not when they got sick. That's when their body completely decompensated. It was trying to compensate for them for a lot years, for what's going on and then one day, it said, "I can't do this anymore," and now you have a disease.

I do want you to think of health first, then it starts to fall apart. You get some symptoms which are warning signals, but most people just treat those with medications or ignore them and the physiology continues. That leads to conditions and the same thing happens with conditions because now, we actually can put a name to it, a condition like hypertension, for instance. We start to treat hypertension without the same, "Why do I have hypertension?" Hypertension, over a long period of time, again, treated or not treated, that physiology that caused it is still continuing more than likely. That leads to chronic disease. Then of course, chronic disease leads to the demise of the individual. It's a continuum and we're going to talk more about that.

Now, metabolism is basically all about building and using which I'm going to talk about. What regulates these biochemical reactions in your body are your hormones. Hormones are chemical communicators which, again, I'll get into a little bit more in a minute. The good news about all this is that even though your hormones regulate your metabolism, you regulate your hormones. Of course, your hormones system have to be intact for that to happen and we're going to talk about hormone therapy when they're not intact. In general, it's really up to you and what your decisions are, what your habits are in a day-to-day basis. You're going to start taking over, giving your body the signals it needs in order to be healthy. That's what this talk is about today.

Therefore, you have a high degree of control over your own health. The good news is there's only a few things that we have to look at. We only have to look at nutrition, sleep and stress, chemicals, exercise, and hormone balancing therapy if needed. Not everybody needs hormones at any given moment. Again, you don't want to take a hormone if you don't need it because that will cause a hormone imbalance and lead to disease. We want to be judicious about who's going to take hormones. When I say you are your metabolism, what am I talking about? Well, metabolism is the sum total of all of your biochemistry. There are all kinds of building reactions that occur in your body. There's all kinds of using reactions that occur in your body. When I say using, I mean function.

On a day-to-day basis, you are doing things. You're not just sitting around like a lump on a log. You're actually active. You're engaging, you're thinking, you're doing, you're moving, whatever you're doing. Right now, me doing this, that's using. By the way, you can only be using or building at any given moment. You're really not using and building at any given moment. Actually, this gives me a chance to just stop for a moment. If I could get everybody just to stand up for a minute, if you don't mind, and stretch. I like that. It feels better, right? Now, you're going to sit down and we're going to do this periodically. When we get to the point in the talk, I will tell you why I'm asking you to do this. Thank you for doing that with me.

In general, in order to stay healthy, this is the whole crooks of what you need to be doing, you actually have to, on a day-to-day basis, rebuild and restore and replenish what you use. I can hope you can imagine that if all I did was use and use and use and use and there was no rebuilding involved, there wouldn't be around very much to use again tomorrow. We really, again, want to talk about the balance between rebuilding and restoring and then functioning and using and doing what I want to be doing. Thank you. Again, if you use more than build and time goes on, you're going to break down. Again, what am I using? I'm using up functional biochemicals. What are those? Well, neurotransmitters are functional biochemical, right? Digestive enzymes. In fact, any enzyme in your body is a functional biochemical.

Hormones are functional biochemical. You don't eat hormones. You make them. You're going to have to rebuild your hormones so that your hormones then tell your body what to do so that you can function and use and then you want to replace everything that you've just used. There are structural chemicals in your body. What are those? Bones, muscles, all your cells and organs, your hair, your skin, your nails, you can think of everything that you can tangibly touch. Then, there's function. Again, these are the things like antibodies to help me fight off infections and the hormones and the enzymes of the bodies, all of the cytokines of the system, in your system, all that kind of stuff. Then, there's energy biochemicals. Now, it's the glucose and the fat we're going to use to drive all of these reactions of using and building. Those are the three types of chemicals in the body. We have to step away from just thinking of energy in and energy out because energy in and energy out is only talking about one of those biochemicals. That's the energy biochemicals.

How many of you ... I don't know how to say this but how many of you are under the impression still that it's all about calories, in it goes, calories out to keep you thin? That makes me happy. For years, and this is still what's going on today, we'll take somebody like Type 2 diabetic with insulin resistance. You're going to hear ... You're going to actually learn today what that actually means in biochemical terms because I'm going to show you slides on what is known about the intracellular mechanisms that are occurring in insulin resistance. In general, we take this person with insulin resistance and that's a pretty damaged metabolism. We tell the individual who's usually overweight that all they have to do is lose weight. If they lost weight, they'd be healthy. That's what they say always over and over again.

How do you take somebody with a damaged metabolism and get them to lose weight? You have to pretty much starve them or you got to over-exercise them. You're really pushing on the chemistry to make that happen. When you do that, you're causing this person to break down. You're breaking down. You're not building when you do that. That's actually going to perpetuate the insulin resistance which is what we're going to talk about today a little further. The other thing that you want to think about since we are now living long enough, we're living long enough to age and so therefore, we are dying from aging really. That's normal. We're all going to die from aging. I'm not here to tell you how you can live forever. What I am here to do is to say slow down accelerated metabolic aging. Don't speed that process up. It's coming anyway. What you don't want to do is putting your foot on the accelerator and pushing yourself into the aging process which again, you're going to learn.

Anyway, in the terms of definition metabolically, we all age because we lose the ability to rebuild as well as we once could. That is normal aging. If I'm talking about metabolism, I'm saying keep your building and your using in balance. If you are doing things that are causing you to use more than build, you are accelerating your aging. Can you follow that with me? That brings us to informed decisions. I'm telling you that it is your habits that control your hormones. It's your hormones that control your metabolism. It's from balance metabolism that keeps you healthy. Really it is what you're doing every moment of every day. You have to start thinking in those terms. Usually, when I get to this part of my talk, everybody gasp because I think of everything they've done, but we want to go forward. You still can start right now learning the things that you need to do to keep your metabolism in balance. We're going to talk about those at the end of the talk.

Now, another interesting thing and I've heard this all the time, I've been in practice now for 25 years with my patients and a lot of times, I'll hear, if I ask the patients about habits or what they're doing, they always say, "I listen to my body." I love that except sometimes, your body tells you the wrong things. People say I don't eat until I'm hungry so they might skip breakfast and lunch and not eat until dinner. That's not a good thing. What you have to understand is the body is not here to make you ... It's not here to tell you when you're doing something wrong. It's here to compensate for you. Early on, when you are, let's say, skipping breakfast every day and yet thinking you're functioning because you got good energy and your mind is working and you're going about your day, your body is going, "Oh my God, she skipped breakfast again."

Emergency, emergency, emergency.” Inside, your body is compensating for that. It is breaking you down so that you do not become hypoglycemic because hypoglycemia or low blood sugar is not compatible with acute life. We’re going to talk about hormones that get activated when that happens.

Now that I said that, how many of you skipped breakfast? Hold on. For years? Do you also drink coffee in the morning to get yourself going? Skipping breakfast and drinking coffee? That's two using against zero building. It's already a misbalance but ... You have a question?

Male: [Inaudible 00:23:26]?

Diana: Oh, so sorry. Hold on one second.

Male: So that everyone can get ... Am I on? [Inaudible 00:23:40] use a microphone for everyone.

Male: Cool. I was just thinking of skipping breakfast in a week or two and seeing trying to do intermittent fasting and seeing it is a good strategy and just now you're saying that ...

Diana: It's not.

Male: ... it's not.

Diana: You're going to leave today knowing why it's not. I'm going to tell you right now, it's not, but now we're going to go through the chemistry why is that so.

Male: Perfect.

Diana: I'm glad that you were thinking about, haven't done it yet so we can stop that aging process. Again, if you do skip breakfast, you actually can feel better. You can actually get more energy doing that. In fact, sometimes people say, “Well, I skip breakfast because when I eat, it makes me tired and I can't think and I get fuzzy-headed.” We'll talk about how you already have a compromised metabolism if skipping ... Excuse me, if eating breakfast makes you feel bad or you might be choosing the wrong foods. That's always the other side of that. In general, we don't get immediate feedback so we develop habits.

Another bad habit would be over-exercising which we’re going to get to. Anything that I do that keeps my heart rate up for a long period of time and I do that continuously, especially if I don't eat breakfast, because I heard, the tennis pro here is skipping breakfast obviously than you're on the court, again, you're going to be in using mode. We’re going to go over the hormones that go up and the biochemistry behind that so you know that what I'm just telling you is a fact. That's all it is. In order to make good decisions then, since your body is not going to tell you and it's going to compensate for you whether you like it or not, then there has to be knowledge and awareness. You do really have to have accurate information and you need to know

how it works because only then can you make the decisions for yourself that are going to keep you healthy. When the next fad diet comes along and you read the book on that, you're going to go, "Does this diet make me build or use? Does it balance me out or does it cause more using than building?"

I hope you're going to get out of this talk that anytime you're using more than building, you are breaking down. Since that's what aging is all about, you're actually accelerating your aging. Yes, this is the weirdest thing of all. It feels good to break down. It feels great to break down and tell you're broken. Then, it feels really bad. How many of you have gone on diets? Any type of diet where you've eat in a certain way, where you've lost a lot of weight and had a lot of energy doing that? There comes a time in that diet where either you start to plateau on the weight loss or you can't maintain that anymore because you start to run out of energy. Again, your body is saying, "Okay, I need sugar going to my brain 24/7."

Does everybody realize you need glucose going to your brain to keep it alive? If I'm not eating enough calories or I'm not eating enough carbs or I'm skipping meals or I'm fasting, I'm not going to get the sugar that I need. When that happens and I get hyperglycemic, well, is hypoglycemia compatible with life? It is not. If your body didn't come to your rescue, it can't, it's not going to tell you you need to eat because it's when you're fasting or not eating enough, you actually put out chemicals like adrenaline which is a very energizing chemical, but it's also an appetite suppressant. You actually feel like, "Oh, this is great. My appetite is down." Again, I'm only going to eat when I'm hungry so I'm not going to eat now and I have good energy and I'm even better, I'm losing weight. Isn't that the whole goal?

Again, today, you're going to learn that losing weight by breaking down is the wrong way to lose weight. You always want to lose weight or be your ideal body composition because you are building and the energy that it takes to build is what's going to get you to lose weight. Yes, it's a slower weight loss, but it's the only type of healthy weight loss that there is. We'll talk more about that. Back to science, everything that ... I'm a big believer in biochemistry. The nice thing about biochemistry is it's immutable. These are the laws of biochemistry if you will. We don't come out changing biochemical pathways every other day like we do with, oh, here's a new study that says you should do this and here's a new study that says you should do that.

Twenty-five years ago, because I've been doing this type of metabolic medicine for that long, I moved to Santa Barbara, California and within a year or two, I pretty much had a big target on my back. I turn to this big diabetes clinic and it was all about changing diet and exercise, et cetera, et cetera. The doctors in the town wanted to, I'm going to say, tar and feather me, in a way really, because this was new to them. They asked me to grand rounds. Now, in my mind, I thought, "Okay, they're not doing that because they go, wow, she really knows what she's doing. They were all going to gang up on me, interview in this forum and they were going to start attacking." I said, "Well, I'm a little bit smarter than that. I'm going to give them a biochemistry lecture."

That's what I did. I went through glycolysis, glycogenolysis, the Krebs cycle, oxidative phosphorylation, and I started to show them the biochemical pathways which is what I use when I treated my patients and why I was asking them to change their diet, et cetera, et cetera. Well, prior to that, I had been practicing or thinking about what could they ask me and here's my pithy response to that. I have to admit that I did not think of the one question that I was asked first. After this, it was standing room only. It was pretty interesting. It was the most well-received, I shouldn't say well-received, most well-attended lecture even to this day in Santa Barbara. It was standing room only.

At the end of my lecture which again, this is all about Lehninger and biochemical pathways and nothing about Diana says or this is what I believe in, I got a question and the questions was, where are your double-blind placebo-controlled studies to prove what you are showing me today? I almost fell over. I also finally, for the first time, understood what the problem was. Doctors don't believe the science. They want to study and I'm thinking, "You can't do double-blind placebo-controlled study. There's too many variables. It's never going to happen." Now, we're going to say we're going to just ignore the biochemistry, the physiology, the endocrinology, everything that's known because you want me to perform a study before you believe what we're doing. Doesn't that sound ludicrous to you? That's 25 years ago. We're still there. We're still there. Nothing has really changed.

However, I said click, click, click, click, trying to think really quickly. I said, "Okay, well, I'll be honest, there aren't any. However, here's the science so I don't have a study, but I have the science." Where are your double-blind placebo-controlled studies? Telling me, because you're doing something and I'm doing differently, so where are your studies? You don't have the science because I have the science so you must have the studies. Do you know how quiet that room got? It was pretty impressive. It was very funny. I have to say I've always been very good at thinking quickly on my feet but I was very proud of that one. Literally silent. Then, I threw out the challenge. No one's coming up for the study. Here's my number. Anybody who finds this, go now and do your literature searches because obviously, you weren't prepared and get back to me.

Nobody called. I know that surprises you but that's what you have to understand. We're wanting to have studies about something we can't study because to do a double-blind placebo-controlled, you have to have very few parameters. Everything has to be just so. You can't do them. Yes?

Male: I love what you're saying and I love the fact that you believe in biochemistry because I think that's where it's at too. I don't think we should say that there are no studies because what we should say is in biochemistry, science has done it in different way. You go into a lab and you find out what happens when you put these chemicals together and what the reactions are. That's how we know, that's why we have agreement among biochemists. Those same reactions occur in our gut, in our cells, wherever it is. There's plenty of experimentation. There's plenty of studies in biochemistry. They're just not these double-blind so forth and so forth, which is just

like ... Your answer was perfect because there's been studies that only 20% of the treatments we get in mainstream medicine are evidence-based. I'll stop right there.

Diana: Thank you. Basically, that's what I was saying. When I said there's no studies, I meant there were no double-blind placebo-controlled studies. Yes? You and I are on the same page on that. I didn't make that clear enough. Absolutely, because that's why I said, I said, "Are you going to argue with the biochemistry?" This is very interesting. This is frightening. Again, I'm coming from biochemistry. I'm coming from endocrinology. We know what these hormones do in the body. Do we know everything about every hormone? No, but we know a lot. We know a lot. In fact, we know so much that there's a lot of things we can predict and I have predicted 25 years ago that studies have shown to be true 25 years later. We'll touch upon those as well.

Anyway, just as you're saying, you're putting two biochemicals together under the same circumstances and we're going to keep getting the same reactions. There's nothing pure than science. I absolutely agree. Now, we turn to the 360 integrated view if you will. Basically, please realize your body is one big chemistry set. You are a bag of chemicals. Excuse the word bag, but you are. Your biochemical are constantly interacting with each other all that time, for good or bad, they're interacting. Nothing in physiology happens in a vacuum. Again, when my patients come in and they say, "I want to know why this happened." It's never one thing why that happened. There's going to be lots of ways to get to the same pathways which we'll talk about that.

Change begets change. One change that happens in my physiology will affect another change and so on down the pathways. As I said earlier, there's no such thing as heart health if you will, or brain health. This is all about compartments and we can't compartmentalized anything. That goes to hormones also. I will tell you that there's a lot of physicians out there who still say, "Oh, here is the estrogen system," or, "Here is the insulin system," or, "Here is the adrenal system," and guess what? It's all one system. There's no such thing as the estrogen system, the adrenal system, or the insulin system. These are biochemicals that talk to each other all the time.

Now, I was hoping for a whiteboard because I like to scribble but what ... What's that? It's behind the screen. I'll get to that when I do really want that board but you can see this so if you think of your body as a system of systems and everybody is interacting, you can look at me and go, "Here's the stick figure of Dr. Schwarzbein and her head is up here and her feet are down there and everything in between." That's not how I look at the body. I look at it as a bunch of wires that are crossing and everybody's talking to each other and my brain is talking to my heart which is talking to my kidneys and my livers. It's all one thing. It's inner meshed if you will.

Stop thinking about your brain in your head and your stomach in your abdomen and your ovaries in your pelvis. Everybody is talking to each other and the chemicals that connect everything are hormones/neurotransmitters, but to me, neurotransmitters are hormones released by neurons. We're still talking about chemicals. What are chemicals ... Excuse me. What are hormones? They are chemical communicators. They are the chemicals that tell your cells what to do. They talk to each other. Now,

we pull out the endocrine system if you will and look at all these chemicals. Then, we start to realize, "Wow. They're interconnected too."

We don't have siloes. We don't have siloes. You can't measure hormone and go, "Now, let me fill up the tank to a certain level." If you start looking at the body as numbers and fill enough numbers, you are going to create hormone imbalances. Again, I want you to think in systems, not in siloes. You can also think, "If all it takes is one hormone to be off, what happens if one hormone is off?" That communication which is an imbalance ripples through the whole body, doesn't it? If I then have my whole hormone system off, what do you think the rest my body is doing? My brain isn't working as well. My heart is not working as well. My liver is not working as well. Does that cause you just to keel over and die? No. Thank goodness.

Yes, your body is trying to compensate for that and keep you alive which again, I don't know if I stressed it enough but your body, by the way, could care less if you feel good. It's going to make you feel good initially because it's going to try to compensate but at some point, if you keep doing what you've been doing, you're going to have symptoms and conditions. I can't tell you how many people come to me and say, "I have no energy," or, "I'm achy all over," or, "Why is my hair falling out? Why am I gaining weight?" I said, "That's your body trying to keep you alive." Thank your body now because obviously, you are the one giving your body the signals that it's dying and it can't compensate for everything. What do you think it is going to compensate for? How beautiful you look or keeping your heart beating and sugar going to your brain and your blood pressure from going to below.

Treat the cause, not the symptoms. Heartburn, how many of you ever experienced heartburn? How many of you taking antacids to just treat that and not thought about it? Shame on you. No, just teasing. Get up here right now for your spanking. What about bloating after you eat or joint pain or stiffness or just the feeling of anxiousness, maybe getting some headaches, right? A lot of times, we either ignore this or we just take something for it. We're just saying, "Why do I have that?" Sometimes, it only happened once. Who cares? If you're constantly getting headaches and you are taking aspirin for that or caffeine for that or any, the treatments for that, you can start wondering what else is going on in your body because it's not okay to have a headache.

A headache is a systemic problem. It's not just emanating in your head. Again, think of all of these symptoms as systemic. You might feel them in one part of your body or the other but it's created by a physiology biochemistry that's out of balance otherwise you wouldn't have that problem. Again, I want you to start thinking of these as warning signs. My favorite. I took a lot in nutrition courses in college, that's because I thought I was going to be a biochemist and study nutrition before I went to medical school. When I went to medical school, I didn't realized that we didn't get nutrition because I thought everybody was taking nutrition. I came in with this whole appreciation of how important food is not realizing a lot of my cohorts training with me had no idea, but I should had a clue because I trained in LA County, USC.

There was this terrible cafeteria in the county hospital which I'm very proud to say nine years of training there, I never ate at once. I would bring my own food and I sit with everybody and eat. Here would be, everybody going in there and I'm telling you, this was just the greasiest spoon you'll ever going to visit. The doctors were just like, "Free food, free food," and just getting all these free food and getting heartburn from eating this. What do you think they did next? But even better, they walked across to the auditorium to Drug Day where they got free antacids and then come over. I would watch this and think, "Oh boy, these are the physicians of America."

There's a problem here. If you're going to treat symptoms that you're creating with medications, what are you going to tell your patients? It's scary. What we don't want to just do is take drugs. Now sometimes, you have to. I used to work in an intensive care unit in a coronary care unit. You came in to my unit, you'll be pumped full of drugs because I would try to keep you alive. There are is no place for chronic ambulatory drugs in my opinion because if you've ever read the PDR, it's a very scary book. It's a horror story. Yes, you can use them judiciously. Yes, they have a place. Sometimes, people have to use them like if you have high blood pressure. Likely you run around with high blood pressure, you can promote stroke. I'm also not going to just say, "Take this drug. Good, your blood pressure is lowered. We don't have to do any work."

Now, we have to do the work to say, "Why did you have the high blood pressure in the first place?" It's not because you had a deficiency in the blood pressure medication. Something happened. Something happened. We're going to treat the underlying causes. Today, you're going to realize that this is all about metabolism and a damaged metabolism that causes all these conditions. I think I already touched upon that disease is a continuum. As Jonathan mentioned in the intro, we used to die of infectious diseases and industrial accidents and childbirth and a lot of things that we're going to call external. We're not saying we eliminated all of this but we pretty much have it under control. Now, we're going to die mostly from chronic disease. Here's the scary thing. Chronic disease is occurring earlier and earlier.

We used to say the degenerative diseases of aging. Well, 30-year olds having heart attacks, 12-year olds being diagnosed with Type 2 Diabetes, a lot of the initial work that I did in my clinical research if you will was on Type 2 Diabetes because as an endocrinologist, that's the bread and butter of endocrinology if you will. I remember, the patients coming in to me and working with them. I was just ... Back then, by the way, some of the science I'm going to show you today, we didn't even now. We were scrambling to try to guess like what was going on because I could either believe that this was a degenerative disease that you couldn't do anything about or that wait a minute, we might be missing the boat here, maybe it's what we're asking the patients to do isn't the right thing.

By the way, 25 years ago, we were in the high-carb low-fat movement. However, I'm going to say ... Today, we're in the high-protein low-carb movement. Even worse. You're going to find out why that's even worse. Anyway, basically, during this time with my work with Type 2 Diabetes, I said, "If we do not change what we are doing

today, not only what causes diabetes but in the treatment of diabetes, we are going to, in 10 or 15 years, see Type 2 Diabetes in our children.” I was five to 10 years off. It was earlier than I thought. Within five or 10 years of seeing that or thinking that, we started to see Type 2 Diabetes in our teenagers and in our kids. It’s a very sad state of affair when you see that.

Unlike the infectious diseases, again, degenerative diseases of aging, do they just pop up? No. They’re years in the making. Any of you who are skipping breakfast right now are, sorry, I didn't mean to pick up on you but since you already raised your hand and I have your name ... No. I need you to stop that behavior right now. You're going to create disease. Again, it starts off with imbalance system of hormones, systems from what I'm doing, and that leads to symptoms, the symptoms, if I don't do anything about them, when I just treat them with drugs and the physiology continues, it erodes. This is hard to see. How many people can say, “Oh, here I am at age 20, really healthy, and I don't feel like eating breakfast. I'm busy and never ate breakfast.” All of a sudden, at age 40, guess what you have? Type 2 Diabetes.

I used to tell my patients with diabetes, “My working title of my diabetic book is Oh, But I Never Ate Breakfast,” because I would hear that over and over again. When I first started working with patients, and believe me, I trained at a county hospital. There wasn't a lot of getting to talk to patients at that point in time. Really, my first experience with understanding what was going on versus just being told how the body works in medical school was when I sat down and started listening to my patients and I kept hearing the same story. I'm going to tell you now, 25 years later, there has been one patient with Type 2 Diabetes who said, “Well, I did everything right. How come I have Type 2 Diabetes?” I never heard that.

I've heard people thinking they're doing the right thing like skipping breakfast because they're not hungry and they're listening to their bodies. That kind of physiology breaks you down and can lead to Type 2 Diabetes especially if you have genetic predisposition for it. Everybody who skips breakfast end up with Type 2 Diabetes? No. You can have a heart attack from doing that. You can have Alzheimer’s dementia from doing that. It’s again, when we talk about disease being a metabolic disorder, it's 90% what you do and 10% your genetics, which, again, we’ll talk a little bit about. Usually, it’s going to be, “Well, in my family, if everybody is doing it wrong, we get diabetes,” or in somebody else's family, it could be heart disease or Alzheimer's dementia or if you're unlucky, all three. We see that a lot. That's when you get really pissed at your parents.

What about hormones regulating your metabolism? Remember, we talked about building and using reactions. I don't know if you're aware but you cannot build if your building hormones are not higher than your using hormones at any given moment. You will not built. You can eat, that doesn't mean you're building. You need to understand, what are the things that are going to get my building hormones higher than my using hormones? Then, of course, are we trying to get rid of the using side of the metabolism? No, because that's what keeps me alive and functioning. We want to build so we can use.

Everybody stand up again and stretch, and stretch, and stretch, and sing. I'll get it. I'm just going to get ... Thanks, Tony. Keep going. Did I say you can sit down? No, just kidding. Good. Building and using are under hormonal control. There are building hormones and there are using hormones and there, guess what? Is a hierarchy of hormones. The major rebuilding hormone of your body is called insulin. Does everybody heard of insulin? How many of you are afraid of insulin? Well, when you're going on low-carb diets, you are lowering your insulin levels. We're going to talk more about that.

Insulin is your friend. Today, we're going to talk about how it's your best friend. It is the major antiaging hormone of the body since aging is losing the ability to rebuild and repair. If you've ever heard that as we all age, we get more insulin resistant, insulin resistance means your body is not responding well to insulin, that's what aging really is, losing the ability to rebuild as well. What about using? Well, there's pretty much three major using hormones. Adrenaline, noradrenaline, and cortisol. Now, when I used the term major, that means there must be minor. There are minor hormones. For instance, thyroid hormones help insulin rebuild you. Human growth hormone is a minor hormone that helps insulin rebuild you. It is not the major hormone. I don't know why we call it human growth hormone instead of insulin being human ... You know what I'm saying? Their names are confusing but it's not.

How do we know that? Well, you can have zero levels of human growth hormone in your body and still be alive. Can you have zero levels of insulin and still be alive? No. What happens? How do we diagnose Type 1 Diabetes? Type 1 Diabetes is the inability to make insulin. The patients are wasting away. They're breaking down rapidly. They eat and eat and eat and they lose weight. Of course, initially, they're really excited about that. Then, later on, they realize, "Wow, something's wrong because I'm really not able to hold this." That's how we know insulin is your primary, your major building hormone. There isn't another hormone that you take away that does that.

Now, you can excess of adrenaline and you're going to waste away too, but that's excessive, that's not taking it away, because what's adrenaline? One of your major using hormones. If it goes high, you're going to use and use and use and use. What else does like noradrenaline and adrenalin do? It keeps your heart beating. If they go away, that's not great. What about cortisol? It keeps you from getting hypotensive and having cardiovascular collapse. That's pretty major. That's why I'm calling them major hormones. Having said that, to me as an endocrinologist, they're all important. The deal is who is the most important? Who has the loudest voice?

Since I'm not going to make you all into junior endocrinologist, at least not in one night, you got to have to go and read books and we'll get you there, I want you to come away with just thinking that you're going to think about all the things that cause insulin to go up and all the things that cause adrenaline and cortisol and noradrenalin to go up. Then, you're going to look at your lifestyle and say, "Am I balancing those two systems?" We'll get into why it's a three to one in a moment. Again, it's the combined effects of all of these hormones at every given moment. Do you ever turn

off adrenalin? No. It's always there, just at different levels in your body. I hope you realize that because a lot of people think it's an on or off switch but no. These hormones are always there. There's basal rates and then there's higher rates and then a higher rates than that.

If you make tumor, if you have tumors that make them, then you can even get into higher levels of that. Real endocrine disorders, so tumors that overproduce hormones, are very rare. That's not usually what we're seeing in clinical practice. We're seeing habits that are causing imbalances in the hormones. That's why we're saying, "It's under your control most of the time." Again, to reiterate, you cannot be in building and using mode at the same time. However, I can be highly, highly, highly using and then my body is going, "Oh my goodness, I better compensate for that or I'm going to be highly, highly, highly dead." Because you can see here, building and using. If it looks like this, how long do you think you're going to live? What does your body do? It starts to try to make more insulin and keep it higher to try to be a stopgap for you.

What do we start seeing in the bloodstream when that happens? We start seeing high insulin levels. Then, we start seeing disease. Who do we blame? Insulin. It had nothing to do with insulin. Insulin was keeping you alive. It's keeping you from breaking down and killing yourself. Insulin is the innocent bystander that's been getting all the bad rep. It's really adrenalin and cortisol and noradrenaline that's killing you. We'll talk more about that. Metabolism is about building and using. Now you know you want to balance those out. Now you know that there's hormones that determine that. What determines your hormones? Back to your habits. It's going to be all about nutrition and all that good stuff.

The way I'm eating, how I'm handling stress, how much sleep I'm getting, what other chemicals am I getting exposed to or put in in my body, what type of movement and activity that I do, that determines my hormones as long as all my hormone systems are intact. That goes out the window if I do have a gland problem. For instance, in menopause. Menopause is the permanent loss of the sex hormone system, not temporary. Anybody here who is in menopausal hormone therapy done correctly is actually in more break down mode than building mode which we're going to talk more about. That's why we say menopause is a time of accelerated aging for women. We see that.

Again, nutrition, it's not just what you eat, it's actually how you eat it. It's how you combine your foods. What kind of ratios of your complex carb to protein are you eating? Are you sitting down? Are you relaxed? Are you chewing your food? Are you standing around throwing things in your mouth, multitasking? Because you cannot digest in sympathetic mode. If you're running around, your body is not going to digest. I'm sure you've heard lectures in here before on [inaudible 00:56:32] that if you're not digesting your food and undigested food is reaching your small intestine, you are having immune reactions to that food. That's where your immune system begins if you will. We'll talk more about that.

It's not just stress because we're all stressed. It's actually your response to stress. If you get so stressed that you skip meals and you drink alcohol or you smoke cigarettes or whatever you're doing to help you with the stress or you're just too stressed to even think about that, then your stress and how you're handling that stress can actually propagate stress and make it even worse. It's also the emotional component of that. How many of you think that you do a very good job handling stress? How many of you think you do a very bad job on handling stress? How many you don't know if you do a good or bad ... Which is good. That's more honest. I also want to change the definition of stress with you today. It's really not emotional because there's a lot of physical stresses that occur. We'll get back, we'll get to that too.

How much sleep and how deep of sleep and are you cycling into stage three and four or you go, "I sleep well because I take Ambien at night and it knocks me out," or my favorite, you got to realize, they don't teaches a lot about how to interview a patient for habits because we don't ... Habits aren't important. When I first started working with my diabetic patients, the first thing I'd say to you, "So, do you have a good diet?" Oh, yeah. I go, "Okay," and I would move on to the next question. Do you sleep well? Yeah, really well. It didn't even occurred to me that everybody had their own idea of what that meant. When I couldn't find any rhyme or reason for what was going on, I started thinking, "Maybe I should be digging a little deeper." Then, I was appalled to find out what they thought was eating well or sleeping well.

My favorite is, "Oh yeah, I sleep great." Okay, great. What time do you go to bed? Well, I go to sleep, I'm in bed at 10:30 and then I toss and turn for half an hour to 40 minutes, and then I finally fall asleep. Oh yeah, and then I wake up a couple hours later and I go to the bathroom, then I come back and then I think a few things. I would hear the story, going, I would almost scream because if I wake up once and look at the clock and fall right back to sleep, that is the worst night sleep I've ever had. It's important to understand that you're not supposed to be waking up in the middle of the night to go to bathroom and know you won't pee in your pants if you sleep through the night because that's now a lot of my patients get worried. If you make me sleep through the night, I'm going to pee in my pants. No. You're going to the bathroom because you're out of balance. There something going on with you.

You should be able to lie down for eight hours and not have to get up to urinate. Something is going wrong if that's not happening. Let me read faces now. How many of you go to sleep, hit the pillow, fall asleep very easily without taking drugs, stay asleep for 8 hours, and wake up refreshed? The rest of you are sleep deprived. There's a reason for that. If you are not sleeping, which is the time your body uses to rebuild, then you are, what? Using and breaking down more, which means you're accelerating your aging by not sleeping. That's not okay.

Now, this is not a commercial for Ambien. I do not believe in sleeping pills because sleeping pills do not put you in a restored of deep sleep. In fact, they make that even worst. They cycle you out of that. We're not saying, "Oh John. Now I'm going to go and ask my doctor for prescription." We're going to go back and say, "Why aren't you sleeping? What's going on biochemically that does not let you sleep," and you are not

allowed to answer that you're getting older. That doesn't work. Something is keeping you from sleeping biochemically. We got to figure out what that is. We'll talk more about that.

Again, chemicals, caffeine and sugar and alcohol and nicotine and tobacco and hard street drugs and every prescription medication on the planet. These are all going to be what I'm going to call toxic chemicals, but they're also what people use to keep themselves going. These are the self-medicating chemicals that people go, "Wow, if I don't have my coffee, I cannot think or I don't have energy or I can't move or I'm achy," whatever that is. If you are reaching for chemicals to make yourself feel better, there is something wrong with your metabolism. If you can say, "Okay, but as long as I'm having my three cups of coffee, I'm fine," then you are not addressing the underlying issue of why you need to have three cups of coffee, which will then become four cups of coffee, and then five. Then one day, the coffee won't work anymore because you've done nothing to fix why you needed it to begin with.

We're not going to pull coffee away from your café, but you're going to start rebuilding your chemistry so that one day, you rebuild your chemistry so that you can use again and you don't need caffeine to bolster you well. How many of you drink something with caffeine on it on a daily basis? Again, it depends on how much and [inaudible 01:02:28], "Oh, but I like the taste of coffee." I say, "Great, then have it decaf." Then they go, "Oh no." It's really not the taste. Again, you have to ... Now, why am I bringing this up? You're the ones who are asking a question about yourself, because how many doctors are going to sit down and ask you all of these things that we're talking about today? None. There's function on medicine doctors who will do some of that but yes, in general, very few.

Guess what? You've got to take control. That's why we're teaching you all of this. You can take control of your own health. What about movement and exercise? Movement and exercise changes hormones, doesn't it? Then of course, hormones help me move and exercise. It's a two-way street just like everything else which reminds me, can everybody stand up please? After this next slide, this would be a great time I think for a break. Basically, what I want to say therefore, I'm hoping that you're starting to understand that you are in control or you will be in control or probably you haven't been in control, but now, you're going to be in control, but you will only be healthy if you're smart. Smart means you do have to know how it works.

No, you don't have to know the biochemical pathways to the degree that I know them. Sometimes, I forget them and have to look them up again, but you do have to understand, is what I'm doing making me build right now or making me use right now? If you do that and you are left with kind of saying, "How do I balance those two systems out," you are already starting to take charge. After the break, we're going to learn how it all works.