Healthcare from Scratch
Guest: Chris Kresser, MS, L.Ac

The purpose of this presentation is to convey information. It is not intended to diagnose, treat, or cure your condition or to be a substitute for advice from your physician or other healthcare professional.

James: Hello! And welcome back to the Evolution of Medicine™ Summit. We're in our second year, and this year the content is called Healthcare from Scratch. We're on a mission to find the most interesting and relevant speakers who are talking about healthcare from scratch and how we can build a fundamentally effective healthcare system for chronic disease management. And so it's my great pleasure to welcome in for the keynote address of the Evolution of Medicine Summit Part 2, Chris Kresser.

Chris was the keynote on The Paleo Day last year. But in the last year I've had an opportunity to continue to look at Chris's content. And the biggest thing that I could say on your behalf, Chris, is that of all the doctors that I know that are on the cutting edge of functional and integrative medicine and the evolution of medicine, they look to your content.

And so I think it's a necessary step to move out of the Paleo and into really looking at healthcare from scratch. And so it's a great pleasure to have you here on the Evolution of Medicine™ Summit Part 2. Thanks, Chris!

Chris: James, the pleasure's all mine. It's always great to talk with you. I love the work that you're doing. And I'm really excited to be a part of this.

James: Awesome. Well, I've heard you speak about this topic before. And I thought some of your ideas were perfect for setting up the Evolution of Medicine™ Summit Part 2. So why don't we just start with sort of where we are right now because we find ourselves in an interesting position by which to develop something from scratch. And maybe we could just get everyone who's listening on to the same page of exactly where we find ourselves.

© 2015 Evolution of Medicine™. All rights reserved.

Chris: Sure. I guess you could ask the question, "Why does medicine need to evolve in the first place?" Although I'm sure that most people listening to this would agree with that without much of a preamble. But the truth is, James, we're in the midst of the worst chronic disease epidemic we've ever faced in human history. Over a billion people now around the world suffer from diabetes and obesity combined.

Obesity in adolescence has quadrupled just in the past thirty years. And now almost 20% of kids age six to eleven are obese. We have 600,000 people in the U.S. dying of a heart attack each year. We've got one in four women—that's 25% now of women—and one in six men are expected to develop an autoimmune disease in their lifetime. That's just crazy when you think about it, especially given that many of these diseases were non-existent in our ancestors and contemporary hunter-gatherers, which we'll be talking about a little bit later.

We've got over half of adults taking prescription drugs, 40% of the elderly taking more than five medications, and 90% taking over-the-counter drugs. We've got autism prevalence more than doubled since the year 2000, not just because of increased diagnosis or detection. We've got the number of people diagnosed with depression increasing by 20% each year.

And if things were clearly getting better, this may not be the absolute worst news. But, unfortunately, there's every indication that if current trends continue, things are going to get worse actually before they get better. This is the first generation of kids in modern history that's expected to lead shorter life spans than their parents. And I'm a parent myself. I have a three and a half year old daughter. So this is something that's very close to my heart and important.

James: Absolutely. And yeah I have a two-year-old daughter over here too. This is one of the reasons why we're doing what we're doing. I also just want to put in context, Chris, that this is not just an American problem. America has have effectively sort of exported chronic disease, as well. I remember listening

© 2015 Evolution of Medicine™. All rights reserved.

to Jeff Bland give a talk a few years ago and he went to China in 1991 to talk about some of these concepts, and they said, "Hey, we don't even have type 2 diabetes. This is great, but not that relevant." And here you look twenty years later and China is sort of surpassing America now, as well. So this is a worldwide phenomenon.

Chris: Yes, and that's a fantastic point. Just as they are seeing all of the problems of industrialization in terms of environmental degradation and economic issues, they're seeing the problems that come with industrialization in terms of health care and the development chronic disease.

The reason, of course, we're focusing on the U.S. is that's where I'm based. And that's where we tend to have the statistics are the best. But as you're listening to this, you can just pretty much extend these trends to any part of the industrial world and even now as we just pointed out, the developing countries, which are becoming more and more industrialized.

James: I'm being absolutely reminded of that. One being Mark Hyman's book when he talked about when he went to Haiti in the middle of the issues that they had there, the hurricane and the number one admission there was diabetes. And you'd think it probably be some sort of communicable disease—

Chris: Infectious disease.

James: Yeah, but it's not. And also my dad lives in South Africa. And he's quite involved over there. Same thing. Non-communicable disease is the nut that we need to crack. And so it's high time for some evolution in that regard. So I know that you've got sort of a context for understanding why you feel like this is happening because we have to get to the why before we can come up with a solution.

Chris: Sure. Yeah. And the context is that the reason we have been so incredibly ineffective at promoting health and caring for people is that we don't really have healthcare in this country and in the industrialized world in

© 2015 Evolution of Medicine™. All rights reserved.

general. The better description of what we're doing is disease management. And you know, like modern medicine is amazing in a lot of different ways. It's incredible for emergency and trauma care. If I get hit by a car, I definitely want to be taken to the hospital.

And these improvements that we've made over the past several generations in emergency medicine and trauma care have definitely extended human life span to a point where it's longer than it's ever been before. We're starting to be able to re-attach limbs. We're starting to be able to restore sight to the blind. In our lifetimes, we'll probably be fighting cancer with nano robots. I mean some of this stuff is right out of a science fiction novel. But, I think we can all agree that conventional medicine is not very good at promoting health or preventing or treating chronic disease.

And as we've discussed, that is a real nut to crack, the way you put it, James, because chronic disease is more and more not just in the industrialized world, the problem that is just crippling our health care. So we've got a system that's almost entirely focused on suppressing symptoms with drugs. If you have high blood pressure, you're given a drug to lower to it. If you have high cholesterol, you're given a drug to lower that.

And there's rarely any investigation into why the blood pressure's high in the first place or why the cholesterol is high in the first place. And you know, the drugs can be effective in bringing those markers down, and that can, in some situations, reduce risk. But there are a lot of problems with having a health care that's almost entirely focused on drugs.

Number one is that drugs rarely address the real problem. So there's an analogy I like to use about this which is that if you've got a rock in your shoe, and it's making your foot hurt, you can definitely take Advil to reduce the pain. But it would probably be better if you just took your shoe off and dumped out the rock.

Number two is that drugs don't just suppress symptoms. They also suppress

© 2015 Evolution of Medicine™. All rights reserved.

functions. So a good example of this would be that a lot of people take things like ibuprofen to cope with arthritis or inflammatory conditions. And they are effective at reducing pain and inflammation, but they also reduce blood flow to cartilage. And since blood carries all the nutrients and immune substances that we need for tissue repair, if you take Advil or ibuprofen over a long period of time, it can actually worsen the problem and make it more likely that you'll need to take it over time.

The third reason that a drug-based system isn't a good idea is that drugs often correct one imbalance by causing another or several others. So we know that if a drug interferes with one protein in the body, it will inevitably affect many others. And this causes what we tend to refer to as side effects of a drug.

But a better way to talk about it is there are intended effects and unintended effects of drugs. And the problem is that the unintended effects often outnumber intended effects. So my argument is that we need a completely new approach to medicine. We can call it starting from scratch. And this approach should emphasize health care over disease management. That's the real shift that we need in our approach.

James: Absolutely. One of the things that I've spoken about in a certain way is that fundamentally, the medical system that we have now was designed for acute disease. And we've been trying to evolve it for chronic disease. But actually the foundations of what you need are almost completely opposite.

And there's so much time, effort, and attention that's spent trying to evolve systems that were fundamentally not created for that system that my central premise here is that we need to build from scratch, design something that's specifically for chronic disease. And so I'd love to get your thoughts on what the framing of that would look like from your perspective.

Chris: Yeah. First of all, I think that's really smart, an astute observation, because if you think about disease as a spectrum where on the left side you have just the very, very beginnings of disease before it's even recognizable and

© 2015 Evolution of Medicine™. All rights reserved.

on the right side you have acute life-threatening situation as close to death as possible, our system is basically set up to intervene towards the far right of that spectrum. And it does some miraculous things there. We can extend life through some of our heroic technologies.

But where we really need to intervening is as far to the left of the spectrum as possible. And the incredible thing about that is that everyone should be happy with that because it's going to save a tremendous amount of money. And it's far, far more effective, more gratifying work to do as a clinician. And it empowers people to take care of themselves.

So that's kind of the context behind these changes that need to be made. And for me there are really kind of three principles if we were to build this true health care system from scratch, there are three principles. So number one is that it would recognize the exposome as the primary driver of health. And I'll come back to what that word means in a second here. Number two is that would embrace an evolutionary or ancestral perspective. And number three is that it would apply a functional medicine approach to care. So should we talk about each of those, James?

James: Yeah, let's start with the exposome. I think that's a really interesting term. And I figure if everyone could be familiar with that concept, it really helps to ground this conversation. So yeah, let's go for it.

Chris: Sure. So this is a term that very few people have heard, which is in some ways surprising to me because it's such an important concept. And it's been around for about ten years. It was developed by Dr. Christopher Wild in 2005. And it refers to the sum of all non-genetic exposures in an individual lifetime starting from the moment of our conception all the way through to our death.

So it encompasses the food we eat, the air we breathe, social interactions, lifestyle choices, and inherent metabolic and cellular activities. So all of these environmental influences that we're exposed to that aren't related to our genes

© 2015 Evolution of Medicine™. All rights reserved.

which are fixed. And researchers have broken down the exposome since it was originally articulated by Dr. Wild in 2005 into three categories.

The first is the specific external. So this is diet, things like diet, the water you drink, your physical activity, your home cleaning care products, your personal care products and cosmetics, things like that. The second would be broader external influences. So the overall environment in which you live. Things like air pollution, climate, social interaction, traffic, etc. And then the third category would be specific internal influences. So these are things like your metabolism, your hormones, your microbiome, inflammation, oxidative stress, etc.

Now, these influences, all of these things that go into making up the exposome, it turns out, are the primary driver of health and disease for humans. In fact, according to some recent estimates, just three factors of the exposome—air pollution, cigarette smoking, and diet—account for over 50% of mortality around the world.

This is kind of important to understand, I think, because at some point in the late twentieth century, so in the 80s even into the 90s, it seemed like genetics were going to really hold the key to health and disease. The twentieth century was a pretty amazing time in the world of genetics. There was discovering of DNA. There was the discovery of the PCR, or the development of the polymerase chain reaction method for amplifying DNA, which made studying DNA much easier. And then there was the complete mapping of the human genome.

And this led to a period of what you could call biological determinism, which was the idea that human health was almost entirely controlled by genes. And it led to some pretty bold proclamations. People thought that because we had sequenced the human genome, we were now going to be able to literally cure all disease. It was going to really hold the key to developing new treatments for things like cancer and heart disease.

© 2015 Evolution of Medicine™. All rights reserved.

And for those who remember those times, there was definitely some pretty heady ideas about what the information was going to bring in terms of improvements in healthcare. But that promise really didn't pan out. And ironically one of the first people to recognize the limitations of using genes to predict and prevent disease was Craig Venter, who was one of the first to sequence the human genome. And he said at one point, “We simply don't have enough genes for this idea of biological determinism to work.”

And we now know, of course, that genetics account for less than 10% of human disease which means that 90% of the cause of human disease is environmental. And it is directly related to the exposome, all of the factors that we just mentioned. Another way to put it is that genes load the gun, but environment pulls the trigger.

So our genes definitely predispose us to the development of certain health conditions. But in the majority of cases, we have to be exposed to certain environmental triggers in order to for those predispositions to manifest. And that's a really key thing to understand because what it means is that we have a lot more control and influence over our health than we would, of course, if genes were really as deterministic as we once thought that we were.

James: Absolutely. Yeah, that's a key part. And that's part of the empowering message that came through the first summit and this summit is that it's not out of your control. Medicine is not going to be something that's getting done to you. But this is something that you can participate in through controlling the exposome.

Chris: Right, exactly. One of the ways that this plays out and the way that the exposome interacts with the genome is through what we call epigenetics. So this is a very hot field, I'm sure, a lot of listeners have heard this term. And the literal meaning of epigenetics is on top of genetics because "epi" means on top of. But the simplest definition is changes in gene activity that don't involve alterations of the underlying genetic code, but still get passed on to at least one successive generation.

© 2015 Evolution of Medicine™. All rights reserved.

Earlier on DNA, our genetic code, was considered like a template or a mold so if you poured raw, genetic material into that mold a hundred different times, you'd get a hundred identical copies. And, again, this is kind of biological determinism at its finest, the idea that genes completely run the show. It's all about the genetic code and environment doesn't matter. But, again, we now know that that's not the case.

A better analogy maybe for the relationship between genes and environment might be something like a film or a theater production. So if you imagine that genes are like the script, the cast and the crew and the costumes and director and things like that would be like the environment. So take Romeo and Juliet, the script really hasn't changed since it was written by Shakespeare in the late 1500s. But it's been performed and produced in literally thousands of different ways.

And likewise if a script is terrible, even a great director, cast, and crew won't be able to save it. That's the importance of genes. But on the other hand, a great script won't matter with terrible production. You could be born in this world with the best possible genes. But if you eat cheese doodles and drink Big Gulps and don't exercise and don't sleep then you're not going to be healthy.

So again, genes play an important role, but the environment, the exposome, and how our genes express in the context of that influence of the exposome is more important in most cases. And this explains, of course, why identical twins are similar, but not 100% identical in every way. They're matched for genes, for age, for sex, for pregestational environment like environment in the womb. Of course, they share the same womb. And often postgestational environment. Their early life influences are often very much the same. So if you think about it that way, if genes were running the show then you would expect them to be even more identical than they really are.

But while it's true that identical twins do have the same a similar risk for certain diseases, it's not 100%. So you take something like schizophrenia,

© 2015 Evolution of Medicine™. All rights reserved.

which has a strong genetic component. There's some controversy about this. But statistics suggest that the heritability of schizophrenia according to genes is anywhere from 20-25% to 50-60%, but it's not even close to 100%. In other words, if one identical twin has schizophrenia, there's only a maybe 25-60% chance that the other identical twin will have it. And of course this suggests that the exposome and epigenetics play a very important role even with diseases with a really strong genetic component.

James: Absolutely. And we'll get into later what you can actually do about that. And a lot of the summit will be talking about what you can do to limit the negative aspects of the exposome. But I think just that word. If you can get your mind around that word, you're already a long way down the road because understanding your health in that framework is not only empowering, but is very sensible.

Chris: Absolutely. And we don't obviously have control over what our parents or grandparents did and the decisions that they made. But a really crucial thing to understand is that gene expression is happening in real time, all the time. So epigenetics and gene expression are thought to be the mechanism by which a lot of the choices we make affect our health.

So a good example would be there was as study recently published on exercise. We all know that exercise benefits us. And there's been a lot of research into the mechanical ways that exercise benefits us. It improves the way that blood pumps through the body. It improves our muscle tone, oxygenation of our blood, etcetera, all these things that basic kind of physiological responses.

But this study was looking at the epigenetic effects of exercise and showed that exercise favorably affects gene expression. And so it's actually influencing our genes and how they express in real time as we exercise. So, once again, this is just more grist for the mill, so to speak, in terms of helping to be able to understand the effects that our actions have on our health or communicate those effects to our patients.

© 2015 Evolution of Medicine™. All rights reserved.

James: Perfect. Yeah, that's a great starting point. All right, so that's the first segment is that the exposome is the primary driver of health. What do you see as the next principle, Chris?

Chris: So the second principle is that this new healthcare system from scratch would embrace an evolutionary perspective and framework. And I think this is something that's really missing, not only from conventional medicine but even from some approaches to functional and integrative medicine.

The interesting thing is if you look at things through an evolutionary perspective and framework, you arrive at the same conclusion that we just reached talking about the exposome and epigenetics, which is that genes are important, but the exposome is really the primary driver of disease.

So let me say a little bit more about what I mean by an evolutionary perspective, and then I'll go into some detail. There was an evolutionary biologist. His name was Theodosius Dejanski. And he has a very influential quote that I've often heard repeated and I really like. And it was that, “Nothing in biology makes sense except in the light of evolution.”

So what he meant was that all organisms are adapted to survive and thrive in a particular environment and when that environment changes faster than an organism can adapt, there's a mismatch that occurs. And this is a fundamental principle of evolutionary biology and it applies as much to humans as it does to any other animal or organism in nature.

Now, for 66,000 generations, a couple million years, humans and our ancestors ate primarily meat, fish, fruit and vegetables, nuts and seeds, and some starchy plants. We were physically active. We didn't sit for long periods. We lived in sync with the natural rhythms of light and dark, in direct contact with nature, and in close knit travel/social groups.

Now, when you look at our ancestors and contemporary hunter-gatherers, you see that they were remarkably lean and fit and they were free or largely free of

© 2015 Evolution of Medicine™. All rights reserved.

chronic inflammatory disease, which is, of course, what is really just crippling us today. They were also superior to us in nearly every measure of health and fitness from body mass index to blood pressure to insulin sensitivity to oxygen consumption to vision to bone density.

Now, of course, a lot of people have said, "Who cares? Why should we emulate the diet and lifestyle of our ancestors? They all died when they were about twenty-five or thirty years old." There's a little bit of a misconception there. It's true that our ancestors had shorter life spans than we do on average. But those averages don't consider challenges that are largely absent in modern life like high rates of infant mortality, warfare, trauma, accidents, exposure to the elements, and a complete lack of emergency medical care which, as I mentioned before, was one of the main things that's extended our life spans today.

And there have been studies where when those factors that I just mentioned were considered, it turns out that the life spans of contemporary hunter-gatherers and very likely our ancestors were equivalent to our own. In other words, if they were able to escape the warfare or trauma or death due to trauma or accidents or problems with lack of any kind of emergency medical care, they had similar life spans to us.

But the difference is they reached those ages without acquiring any of the inflammatory diseases that characterize our old age like obesity or heart disease, diabetes, gout, hypertension, and most cancers. So of course, that leads to the question, “What went wrong?”

If our ancestors were lean and fit and they didn't have any of these chronic inflammatory diseases and contrary to popular belief their life spans actually were pretty long especially given that they had no medical care to speak of. That should raise our eyebrows and lead us to ask this question: what transformed us from a healthy, vital people that were free of chronic disease to a sick, fat, and unhappy people?

© 2015 Evolution of Medicine™. All rights reserved.

Well, we know now that it wasn't our genes, right? We've talked about that. Our genes have not changed very much since the Paleolithic era. There have been some significant changes. In fact, about 10% of our genome has changed significantly in the past 10,000 years. But that means that 90% of our genes are the same. Instead, it's really this profound mismatch between our genes and our biology and the exposome, the environment that we're living in today that's led to this explosion of modern chronic disease.

Today we have white sugar, flour, and vegetable oil comprising about 50% of the total calories that the average person in the industrialized world eats per day. And these foods, of course, are virtually devoid of any nutrients that we need, and they're full of a lot of stuff that we don't need. We're more sedentary than we've ever been before. We sit while we work, and increasingly we sit while we play with things like video games, computer, social media.

We're chronically sleep deprived. About a third of Americans now sleep fewer than six hours a night despite the research showing that most people need about seven to eight hours to function properly. And this is up from just 2% of Americans sleeping fewer than six hours a night in 1965. So big changes even in the past fifty years.

American men and women—and I suspect this is true elsewhere—are working twelve to thirteen hours more per week than they were in 1968. Stress levels are off the chart for a lot of people. We often feel like we don't have enough time for rest and leisure. And even when we do go on vacation, a lot of us are compulsively checking our email and social media accounts. I recently came across a study that said that over 70% of American workers check their work-related email on vacation.

And finally a lot of us live in frankly a fairly isolating and alienating social environments where we're disconnected from the natural world that we evolved in. We live in these kind of single family unit or even our own arrangements. And we're not living in this tribal, close-knit social groupings that we used to.

© 2015 Evolution of Medicine™. All rights reserved.

I would say, James, that one of the important principles of the new medicine is that it acknowledges this mismatch and it consequently advocates a diet and a lifestyle that is a better fit for our genes and our biology. Now, this is not about paleo reenactment. You don't have to sleep in your backyard on the ground and wear a loincloth in order to get the benefits of this lifestyle. And the media loves to portray the paleo or ancestral framework in those terms, because it gets clicks and it's fun for them to do that, I think.

But the truth is this stuff is in the peer-reviewed literature. This is a very sensible way of looking at what the optimal environment is for the human organism. And we just spent a lot of time talking about how crucial the environment and the exposome is to health. So it stands to reason that we would want the new approach to healthcare to study and acknowledge what that optimal environment is and then to bring it into a modern context.

So again, we're not trying to go back to how things were in the paleolithic era, but there are a lot of ways that we can change our diet and lifestyle to make it a better fit for what our genes and biology are adapted to. And I'll just give you a simple example. Many of us now spend most of our days sitting in chairs, which our bodies were just not designed to do. Of course, the truth is that a lot of us have jobs that require this. So we can't all go out and work construction or be a forest ranger or something like that

But there are little changes that you can make to address that. So one would be getting a standing desk if your employer will allow that. If you work at home, of course, you can do that yourself. Another would be walking or bicycling to work if that's possible, even if you have to drive or take public transportation, you can stop two stops before where you work so you can walk a mile or two to work and then walk a mile or two after work.

You can suggest walking meetings with your co-workers. You can take a break every forty minutes and stand up and walk around. That small change alone has been shown to mitigate a lot of the harmful effects of too much sitting. There are apps now that can remind you to do that.

© 2015 Evolution of Medicine™. All rights reserved.

So there's so many little changes that we can make on a day-to-day basis to bring our diet and lifestyle into closer alignment with what it should be for optimal health. And I think that's a really crucial element of this new approach.

James: Yeah, I think that's so right. And I would say that the perfect example of this to me is the blue zones. If you look at this, where are the people on earth right now that are living the longest with the least incidence of chronic disease. You know, they're not tied into IV nutrition. They're not going to Gold's Gym and working out.

They have an environment which includes all of the areas of the exposome that matched to their genetics because it hasn't changed that much. The hill farmers of Sardinia or the people in Costa Rica have been living pretty similar. And if you look at all those places, the exposome has changed less quickly than say someone living in Los Angeles or Beijing. I think they're a great example.

And it's nice to see on this planet right now that there are examples of people living to 100 consistently. And we'll have a lot more stuff on the blue zones. But in those areas, they're not exercising. But exercise is just a natural part of their life. It's built into their environment. And I think that's a great example to illustrate what you're saying is that their mismatch between their exposome and their genes is not mismatched. And therefore they're living very well without incidence of chronic disease and without much medical care.

Chris: Absolutely and that's where we want to get to. Medical care should be something that is only necessary when all the things that we do and should be doing on a day-to-day basis to prevent disease from occurring and to manage it once it occurs aren't successful. It shouldn't be the first thing that happens. Typically now if someone feels ill is they go to a doctor and they get prescribed a medication. That should be one of the last steps, not the first step. And attending to our exposome and making sure that we alter our diet and lifestyle in a way that's, again, more in alignment with our genes is the first step in

© 2015 Evolution of Medicine™. All rights reserved.

making that happen.

James: Yeah, I just want to ask you one question, Chris, because I was reading an article the other day that said sort of like pseudoscience is coming to an end where saying like now it's cool to be healthy in Kansas. It's not going to cool in New York or LA or San Francisco because we've reached past that.

And I would just say I want to write a rebuttal and say, "Look, this is the new normal. This is the actually normal rather than where we've been." And I think you definitely agree with that that this is not a fad that's going away. This is a fundamental shift in patient's understanding or people understanding that they have a lot more control of their health than they understood maybe twenty years ago.

Chris: I would absolutely agree with that. And if you want to talk about like a historical aberration, it's been the last 100 years. The whole of human history has been, for the most part up until very recently humans have lived in relative alignment with what the exposome that we were designed for.

It's only been in the last few thousand years and way more particularly in the past 100 years. Even as late as 1900—I don't remember the exact statistics—but I think it was over 80% of the U.S. population was still engaged in farming as their primary occupation and still had a very active lifestyle. So that's just over 100 years ago.

So the period where we've had the greatest change has only been in the last 50 to 100 years. And we tend to think of that as normal now because it's what we can remember and maybe our parents can remember. But when you look at it on an evolutionary time scale, the time that we've lived and our parents have lived has been the most abnormal, unusual time in human history.

So the fact that we're moving back to something that is probably closer to the norm for humans, I 100% agree with you. It's not a fad at all. If anything was a fad, it's been the way that we've been living up until now for the past 50

© 2015 Evolution of Medicine™. All rights reserved.

to100 years.

James: Good. Well, I'm glad we're in agreement on that, Chris. So let's get into the third pillar here.

Chris: Okay, so the third pillar is that this new approach to healthcare would apply a functional medicine methodology. So in some ways the best way to talk about functional medicine is to contrast it with conventional medicine. So I'd like to do that for the next few minutes.

And I'll just say right off the bat, in some ways the comparison won't be fair because in a way presenting the best case for functional medicine and the worst case for conventional medicine. And as I said before, there are some amazing things about conventional medicine. And we need to recognize that and not leave that behind. There's no reason we need to leave it behind.

I want to create a system that uses the best of both worlds. We can have the incredible trauma emergency medicine care and acute care capabilities of conventional medicine and then tie that together with this new system that we're creating from scratch. And we'll be able to live healthier, more satisfying lives than ever before and longer life spans than ever before.

Again, I think we can all agree that conventional medicine has not been very good at treating chronic disease, and that's the biggest problem that we have to address. And that's where functional medicine can really excel. So functional medicine is investigative. That's the way that I like to talk about it which means that it treats symptoms by addressing the root of the problem. And that leads to more profound and long-lasting results.

On the other hand, conventional medicine tends to be more superficial. It often just masks or suppress symptoms but doesn't address the underlying cause. And this tends to create what we can call patients for life. So using the examples I used before about high blood pressure or cholesterol, if a patient goes to the doctor and they have high blood pressure or cholesterol, they'll be

© 2015 Evolution of Medicine™. All rights reserved.

prescribed medication to lower it and generally you don't get off that medication. You become a patient for life. You take that medication for life.

And there's rarely an investigation into what causes problems in the first place whereas in functional medicine, we're going to look at, why is you blood pressure high in the first place? Is it related to the fact that you're managing stress? Are you not getting enough sleep? Or there's something off in your diet. You're not getting enough potassium in your diet. Is there an underlying health condition that's elevating your blood pressure?

And we'll do the same for high cholesterol which can be caused by poor thyroid function, intestinal permeability, gut infections, metabolic problems. There's a whole bunch of different things that can lead to high cholesterol. And if we correct those underlying imbalances, often the blood pressure or the cholesterol will come down on their own, and there won't be any need for medication on an ongoing basis or even a supplement on an ongoing basis. So that's really one of the most important principles of functional medicine is that it's investigative by nature.

Number two is that functional medicine tends to take a more holistic approach. This is a big buzz word, of course, but it's important. It means that we look at the body as interconnected whole, and we recognize that in order to treat one part of the body, you have to address the whole of the body whereas with conventional medicine, it tends to be a little more dualistic. It looks at the body as a collection of separate parts.

In fact, there's a doctor for every different part of the body in conventional medicine. And we have specialists for everything from your feet to certain internal organs to your eyes. And there's often very little communication between these specialists or acknowledgement that in order to properly address eye health, you have to address the health of the internal organs and the digestive system and nutrient balance and all of these other things that we understand in functional medicine to be really important.

© 2015 Evolution of Medicine™. All rights reserved.

And number three is that functional medicine tends to be a lot safer, in general. Treatments typically have fewer side effects or risks or complications because they emphasize diet, lifestyle, supplements, and herbs. We're focusing on the exposome primarily. And unrelated complaints often improve spontaneously.

So if a patient comes in and their main complaint is high blood pressure, and we address that, they might find that their digestive problems improve with the treatment that we're using for their high blood pressure. And that's, of course, because of this holistic nature of the body.

Whereas with conventional medicine, it can be more dangerous. It's focused on drugs and surgery both of which can have serious side effects including death in some cases. And this is evidenced by the fact that medical care, according to a study published in the year 2000 in *JAMA—Journal of American Medical Association*—is the third leading cause of death in this country.

Number four, functional medicine tends to be more patient-centered. And this is a really important distinction to understand. In functional medicine we treat the patient, not the disease. And this recognizes that each patient is an individual. There's no one size fits all approach that's going to work for every patient with the same disease.

And, in fact, patients with the same condition may get a completely different treatment because we know that the underlying cause for that condition may be different in different patients, whereas with conventional medicine it tends to be more disease-centered. They would focus on the disease itself. Let's say, type II diabetes, not the patient.

So if you get ten different patients with type II diabetes, in many cases they'll get the same or a similar treatment without much investigation into what the individual differences are for those patients. In functional medicine, the patient plays a more active role in their own healing process. They tend to be more empowered and educated. There's a lot more time spent typically with

© 2015 Evolution of Medicine™. All rights reserved.

education.

Of course, there are always exceptions to these rules. This is just a general overview. And the patient opinion tends to be solicited and respected, whereas in conventional medicine, the patient's opinion's typically discounted or ignored. Little time is spent on education. And patients are, in some cases, discouraged from playing a more active role, especially if that active role involves asking questions or challenging the clinician.

James: Or using Google.

Chris: Yeah, Dr. Google, exactly. Functional medicine tends to be more integrative. It combines ideally the best of both allopathic and alternative approaches. So it doesn't rule out or exclude drugs or surgery when they're necessary. But it, again, emphasizes diet, lifestyle, supplement, and herbs. We focus on the exposome primarily.

Whereas with conventional medicine, there is especially recently some lip service paid to the importance of nutrition and lifestyle but to your point, James, the whole system is not set up in such a way where that is really valued and where there's even time for the clinician to educate the patients about those things in the interaction, which is often in the primary care model only about ten minutes long. That's about enough time to collect the chief complaint and write a prescription. It's not enough time to have a meaningful conversation about these diet and lifestyle changes.

And that, of course, assumes that the clinician is even trained to offer that kind of advice, which they aren't in a conventional medical school. So this is another major difference in functional medicine and an important way that I think things need to change.

Finally, functional medicine is preventative. We talked before about that spectrum of disease intervention. Functional medicine is designed to intervene at the left end of that spectrum, before disease is developed, maybe at the very

© 2015 Evolution of Medicine™. All rights reserved.

early stages. There's an ancient Chinese proverb which is, "The superb physician treats disease before it occurs." And that's just a recognition that it's far easier to treat a disease before it's occurred to prevent it from occurring in the first place than it is to intervene at the end stages, which is one reason why our health care system, our disease management system rather, is so crippled by cost is that the interventions that tend to happen at the far right end of that spectrum when disease has occurred and progressed to a really significant place are so costly and expensive that if current trends continue, our system's going to be bankrupt by the year 2035.

James: Absolutely. And I just want to say one other thing it seems like the further left you go, the more scalable it is as well. Like this what you're listening to right now is an education event that's sort of a primary prevention kind of thing that's happening. But the cost of delivering this talk to any one more person across the world, the marginal cost is approaching zero.

Whereas right on the other end when you're doing some sort of surgery because it's not scalable at all, it requires it. And so our goal when looking at what can be a more effective chronic disease management system, we need to scale the things that can scale. And a lot of the things that you're talking about here can scale- the education, the interventions through diet and nutrition can scale a lot more easily than at the other end of the spectrum.

Chris: That is such a good point. I'm really glad you brought it up. Imagine this. Imagine you're going to your doctor, and you have digestive problems. You've got some gas and bloating and changes in constipation or diarrhea and instead of getting a prescription for a drug, you are given a prescription for an online class that you can take.

And you enroll in that class with a whole bunch of other patients that are a part of practice. And it's anonymous. And the class involves being instructed on how to eat a healthy diet that will be gut friendly. You'll learn about the importance of fermented foods and fermentable fibers, tending to your gut microbiome, stress management and sleep, the role that they play in digestive

© 2015 Evolution of Medicine™. All rights reserved.

health.

And all of this is delivered passively. You have some interaction with other patients, again, anonymously if you want. And maybe once a month or twice a month you can call a nurse practitioner or physician assistant or like in a group call, a small group call, and ask questions about the program. And if any further treatment is necessary, it can be offered there.

I mean that's a step up in terms of what's required to deliver that from just what we're doing now. But it's still incredibly scalable and can help so many people and will help them way more than just prescribing a drug in a one-on-one kind of treatment appointment context.

James: Absolutely. And that's why I really appreciate one of the things that you'll see all the way through this summit is we're interviewing people not only who have the best clinical information. There's a lot of great clinicians out there. But also people who have been able to scale their impact. People who are having impact on thousands if not millions of people by using the ways that we have and that we're developing to scale.

So I really wanted to bring that into this keynote because the scale of what some of these practitioners and doctors and other activists have been able to bring is what I think makes them remarkable. And that's why I wanted to bring those remarkable people to you.

And Chris, with your blogging and also you've taken advantage of all the things, the blog, the podcast, those kind of ways to be able to do this to scale. And I definitely really appreciate that because this is a scaled problem, and it needs a scaled solution.

Chris: Absolutely. So where are we are we at on time, James? Do we have time for a couple case studies before we finish up?

James: Yeah, I think we've got, yeah, a couple case studies. I'd love to, a

© 2015 Evolution of Medicine™. All rights reserved.

couple case studies from the patient's perspective to give patients that are listening, people are sick or people who may get sick in the future, some ideas about what they can do. And then maybe we can finish with a little bit just talking to the doctor population who are also listening about how they can get involved.

Chris: Sure, sounds great. Let's see here. One that comes to mind is we'll call him Jared. He was about forty-three when he came to see me. And his chief complaint was anxiety and depression. And like many people, he'd been on several meds for over twenty years, in his case. I think he started medication when he was in his late teens, when he went to college, eighteen or nineteen.

So he'd been on meds for over twenty years. And it was this kind of merry-go-round where he'd start a new medication. He'd have a decent response. And then it would stop working. And then he would get on a different medication. And it was just a constant battle. I'm sure some people who are listening to this can relate.

And he got to the point where he felt like he'd exhausted his options in the conventional model and just wasn't getting anywhere. The medications were becoming less and less effective. And he was still experiencing a lot of this anxiety and depression. So we did a complete intake with him and a full suite of tests to try to figure out what is underlying this anxiety and depression for him. It's not our natural state.

Of course, there are a lot of societal/cultural influences that can contribute to this, a lot of important psychological things to consider. So I don't want to create the impression that anxiety and depression are just physiological problems. But in my experience, many cases when we do look deeper at the physiology with people with anxiety and depression, we do find significant underlying issues that have been proven in the scientific literature to contribute to mood imbalance.

So we found that Jared had small intestine bacterial overgrowth (SIBO). He

© 2015 Evolution of Medicine™. All rights reserved.

had fungal overgrowth in his gut, too. He had intestinal permeability. He had mitochondrial dysfunction, some problems with cellular energy production that came up on a urine organic acids tests. He had some neurotransmitter imbalances, nutrient deficiencies, and problems with methylation, which can definitely affect neurotransmitter status and mood.

So one way to think about this was the gut-brain axis problem. We know from a lot of research now that there's a very tight connection between the digestive system, the gastrointestinal tract, and the brain. There's a two-way connection. Problems in the gut can lead to problems in the brain with cognitive function and mood. And problems with mood and cognitive function can lead to problems in the gut. And I can tell you not just with Jared, but in almost all cases where I have patients with mood issues, when I look at their gut, I find significant problems and vice versa.

So we addressed the gut issues. And we focused also on the methylation and some of the nutrient imbalances. And within six months, Jared was completely off of medication for the first time in twenty-four years under the supervision of his psychiatrist, who was just frankly completely blown away. He started off being a huge skeptic, and by the end of this six-month treatment, he was calling us to find out what the heck we were doing and how this was working.

And Jared, of course was just absolutely thrilled and transformed. And it's so gratifying as a clinician to see this kind of change in our patients and to be able to really make this kind of a difference in somebody's life.

James: Yeah, I see a lot of psychiatrists come into functional medicine, certainly a lot coming to the functional forum. It's definitely interesting to them when these kinds of things happen, especially when it's happening without the use of drugs which has been their primary intervention.

Chris: I think psychiatrists are really ripe for this work and more interested than perhaps just about any other specialty because they're more aware of the

© 2015 Evolution of Medicine™. All rights reserved.

limitations of the existing approach, especially now. This wasn't so much true thirty or forty years ago where analysis and therapy were more common. But we live in an age where pharmacology has really just been the focus in psychiatry. And I think a lot psychiatrists are dissatisfied with that. They're seeing the limitations of that approach. So they're really ready for functional medicine.

James: Absolutely. Do you want to do another example?

Chris: Yeah, I'll do one more. This one will be a little quicker, but it's a good one I think a lot of people will be able to relate to. So we'll call her Lori. She was about thirty-five when she came to see me. And her main complaint was hyperthyroidism and all the associated symptoms. So cold hands and feet, low sex drive, brain fog, hair loss, bloating, weight gain. This is a really common problem in women.

And like a lot of women and like Jared, felt like she was on this kind of treadmill where she was requiring higher and higher doses of medication to maintain her equilibrium. But her equilibrium was not a very good place to settle because she still had tons of symptoms. And some of those symptoms were just in fact getting worse over time.

So I tested her for Hashimoto's, which is the autoimmune disease that can cause hypothyroidism. And what's incredible to me is how infrequently this is done in the conventional model. And the reason it's not done frequently is because it doesn't really change the way they treat. They're just going to give thyroid hormone replacement anyways. So having a diagnosis of Hashimoto's isn't important.

But in functional medicine, it's crucial because it really shifts the focus of treatment toward balancing and regulating the immune system because that is the underlying problem that is causing the loss of thyroid function. The body is attacking its own thyroid gland. And that's leading to loss of thyroid hormone production.

© 2015 Evolution of Medicine™. All rights reserved.

But we don't just stop there. We want to know what is causing the or contributing to or exacerbating the immune dysregulation. So we look at all of the known triggers of immune dysregulation, which gut issues are major ones. So things like parasites or dysbiosis, imbalance in the microbiome, leaky gut. We look at nutrient deficiencies like iodine, selenium, zinc that can affect thyroid function.

We look, of course, closely at diet. Our modern diet's full of inflammatory foods that can trigger or exacerbate immune problems. And of course, we did all of this for Lori. We fixed her gut. We fixed her diet. We restored the nutrients that she was low in. And not only did her symptoms improve dramatically, she was able to reduce the dose of her medication to the lowest point that it had ever been.

She wasn't able to get off it completely because I think she had already lost a significant amount of thyroid tissue because of the Hashimoto's had probably been present for years before she saw us. But she was feeling better than ever before. And she was doing that with a lower dose of medication than she'd ever taken. So that's just another example of how powerful functional medicine can be for patients.

James: Absolutely. So if you take those two examples, Chris, and all of your other clinical experience, we'll be asking people all the way through this summit, if you could start healthcare from scratch—and obviously we've been speaking about this right now—but what would you feel would be your either unique contribution to it or your key insight that would allow this system to work more effectively?

Chris: Well, in a nutshell it would mean making functional medicine the focus of primary care. And it would be empowering patients to take charge of their health, helping them—both patients and clinicians—to recognize that the exposome is the primary driver of health and disease and that therefore it's within their power to promote optimal health and extend their life span.

© 2015 Evolution of Medicine™. All rights reserved.

James: Well, that's pretty simple. And yeah, certainly what we're all about here at the Evolution of Medicine™. And we really feel that this should be driven by doctors because it's going to take a long time for big institutions to catch up.

And one thing I think is so interesting there is you have psychiatrists. Psychiatrists right now today could come to a functional medicine training, get trained in it, and start delivering that medicine very, very quickly. But how long is it before the American Psychiatric Association will endorse it or otherwise? And that's why I think if we're going to accelerate this evolution of medicine, it has to be driven by doctors and not by the system at large.

And so you've definitely encapsulated the clinical reasoning for this evolution of medicine. And I would just add in that empowering doctors to deliver this kind of care is our greatest asset at accelerating this movement because they can start to practice the medicine of today and not the medicine of seventeen years ago, which I know there's a lot of science that shows that it takes about seventeen years for this to catch up. So that's what we can do today.

Chris: Right. And practicing functional medicine as a clinician is so much more rewarding and gratifying, and on so many different levels. Number one, it's going to prevent burnout because when you're actually helping people and transforming their lives, and you're doing it in a meaningful way, and you're developing meaningful relationships with your patients and when you get the kind of feedback that you're going to get doing this work, it's impossible to burnout.

Every time I go speak at a conference or travel, I'm approached by someone who tells me how much the work that I've shared, the work that we've done together, has changed their lives. And it makes it all worth while, all the hard work worth while. And I don't think a lot of people who are working in the conventional model really feel like they're having that kind of impact. So I think that's crucial.

© 2015 Evolution of Medicine™. All rights reserved.

Functional medicine is just also fascinating and interesting. It's a life long learning process. I mean this is true with any kind of medicine. But there's so much territory to explore and so many really, really potent and fascinating skills and tools to acquire that, again, it just leads to a much more satisfying experience for a clinician, more transformative results for the patient. And it's really a win-win situation for everybody involved.

James: Absolutely. You couldn't have said that any better, Chris. And I really appreciate you not only delivering all of this and doing everything that you do consistently, but delivering this message is clearly here on the Evolution of Medicine™ Summit to everyone.

And I hope that if you're a patient or you're a doctor or you're an administrator in medicine that you have had a chance to listen to this and take some time to really think about its implications because there's nothing else that's arriving that is a solid plan for chronic disease management for reducing costs and increasing health. And I'm very excited to see how this is going to play out in the next few years and very, very thankful for you, Chris, for coming on and delivering that.

So if you'd like to find out more about Chris's work, you can go to ChrisKresser.com. There's tons of blogs and podcasts and all kinds of things on there. Chris, you want to give us a little tantalizing nugget as to what you have coming up in your future?

Chris: Sure, yeah. So later this year we're going to be enrolling the first cohort in a clinician training program that I've been really excited about planning for years, and it's finally come to fruition. There's a lot of great training options out there already for functional medicine. But my training program is going to incorporate both functional medicine and the very important, as we discussed, evolutionary and ancestral perspective on diet and lifestyle.

And it's also probably the way to think about it is as a functional medicine apprenticeship or almost kind of virtual residency where you're getting hands-

© 2015 Evolution of Medicine™. All rights reserved.

on training and a highly practical, proven approach to putting this into practice in your own life, in your own work. There'll be a lot of information delivered certainly. But the emphasis is going to be on practical application. We're going to talk a lot not only about the clinical skills you need to be a successful practitioner, but also how to set up and manage your practice as a functional medicine practice, which is really different than how to set up and run a conventional practice.

And so I'm really excited about that. If you want to learn more, you can just Google "Chris Kresser clinician training." You'll see a blog post at the top there. It goes into some detail about what's going to be offered. And there's a list to sign if you want to be notified in the future when it becomes available.

James: Absolutely. Well, thank you again, Chris, for taking the time to be on here today and starting to create the infrastructure of this more evolved medical paradigm. It's going to take a village to do it. And I really appreciate all of the architecture and building work that you've already done.

Chris: Well, thank you, James, for providing this platform. I think the work that you're doing is so important in helping to spread the word about functional medicine and providing a venue for clinicians to get involved and meet each other, get excited about it, and then getting this information out to patients so they can advocate for functional medicine in their relationship with their doctor. I'm just so happy to see this conference gaining strength and ground. And I'm really happy to be a part of it.

James: Awesome. Well, thanks so much. This is the keynote address for The Evolution of Medicine™ Summit II: Healthcare from Scratch. And so over the week of September 21-28, you will be getting a whole list of other speakers that have not only got amazing clinical information to share but have also been able to scale their impact. And we'll be talking about that all the way through the conference. But for now, this has been James Maskell, your host, and Chris Kresser. This is The Evolution of Medicine™ Summit. And we'll see you on September 21st!

© 2015 Evolution of Medicine™. All rights reserved.