Fasting & Metabolic Health: The Missing Key To Autoimmune Wellness Transcript

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Introduction and Dr. Shuu2019s Background

Welcome to another interview with the Ms. and Autoimmune Summit. And now our next guest is doctor Will Shu. He is an endocrinologist with 20 years of experience who's joined al-Nusra as their chief medical officer.

Now he leads clinical development and medical affairs. Previously, Doctor Shu was vice president at Joslin Diabetes Center at Harvard Medical School, a teaching affiliate, and he was leading their global care and education program.

In that role, Doctor Shu led an interdisciplinary team to design health care programs for health systems, create innovative solutions integrating cutting edge medical and digital technologies, and implement sustainable health care delivery models.

Over ten countries. That's pretty impressive. Doctor shoe's internationally renowned expert on diabetes. And, blood sugar metabolism. He's, professor assistant professor at Harvard Medical School, a diabetes subject expert.

He coauthored the National standards of Care and Policy. Changing positions statement for the American Diabetes Association. Yeah. Of course, you might be wondering why I care so much about diabetes.

If this is a multiple sclerosis, an autoimmune, summit. You see, blood sugar metabolism has a huge impact on, the severity of symptoms and the progression of disability.

And often people have no awareness that their blood sugar metabolism is a problem. So this is going to be a great conversation with Doctor Shou. Well, doctor Siew, I'm so glad to, have you, again, you know, we've talked a lot about, blood sugar metabolism.

And there's a, interesting new paper out, related to changes in, chemo sensory, which has to do with how we taste and smell. So let's let's talk about that.

Why why is that, an issue, for people with autoimmune, people, you know, and also sensitive to aging, now that I'm 69 and I'm like, okay, I've got grandchildren and I want to be around for a long time to watch those grandkids grow up.

So, let's talk about that new paper. Well, doctor, was that first of all, it's such a pleasure to be on your your educational seminar, and and, Oh, I think your audience are so, they are loyal followers of yours, and and that's because I think the educational content is so good and always so authentic and so true.

So, I really appreciate this opportunity to. Come on. This paper is is extraordinary.

Chemosensory Loss, Obesity, and the New Study

You know, for me to be to, to see the results in, in such a lie where a lot of people with obesity, actually experience a loss of sensation in the taste and smell, and and they don't know that.

And, and very briefly, this study show that multiple cycles of fasting, mimicking diets were able to actually reduce, the symptoms of hypoxemia. That's low sensation in the taste and smell.

And, and it just opens up a whole lot of discussion about what is the link of this loss and cessation to, cognitive disorders and also linked to metabolic issue.

And, yeah, let's talk about what little let's talk about that now. Again, for the listeners, you know, we have multiple

sclerosis or a autoimmune condition that's leading to neurologic symptoms.

And, we need to be concerned. Is this going to lead to problems with anxiety, depression? Brain fog, memory loss, and, decreasing smell, means that you're at much higher risk for future, problems with your memory, future problems with, cognition.

So I get very, very concerned when my patients would tell me, that they're, are aware that they can't taste as clearly, they can't smell as clearly. And we do check their taste, do check their smell.

And sometimes people hadn't realized that they couldn't smell. They couldn't taste as well. So you would talk a little bit more about, what your theory is as to what's going on.

Yeah. It's very interesting. You know, people who have excess, excessive weight do struggle with a decrease in chemo, sensory perception. And that that is actually having on our listeners who don't know what chemo sensory is.

So we need to translate that these are really the, the smell senses and the taste senses. And these are really important, senses in the body. Yes. They're not so much for protection, like heat sensing in the skin.

So you will move your hand away from a hot object. But it has a lot to do with the quality of life. Also, it provides a cue to food as well. You can imagine when you lose the senses of food and taste, you know you might lose your appetite, but you also don't know exactly when to stop, right?

Because the satiety also is part of. Tie into that that the chemo sensory perception. And we know a lot of people who have excessive weight actually have a loss of that sensation.

So they lost that quality of life as well. And and so long term people don't know exactly what the tie in is. And also there's never been a true solution.

And what was really interesting is, as we talked about maybe in the past in fasting has been an age old practices across every culture. And more and more recently, science also has begun to unravel the mystery around fasting.

And now we we're in the 21st century. We understand the molecular pathways that trigger that gas trigger when we're fasting. And now with the new technology, what we call new treat technology, such as the fasting mimicking diet, now we're able to manipulate those nutrients.

So, so you could actually consume a certain amount of nutrition while still dry. The benefits of fasting and that and through that kind of fasting, mimicking diets, and the this most recent studies show that a simple six cycle that's five days per month, repeated six times, six monthly cycles, was able to reduce those loss in the in the in the taste and smell sensation, down from 38.1%, down about six point, 6.4%.

So huge, huge change simply by fasting mimicking diets. And again, for the listeners, everyone in the population with multiple sclerosis, with a autoimmune disease, because we've taken often many cycles of.

So you may draw high dose steroids to, treat the acute flares, in the perhaps a decreasing physical activity. Those things increase the probability of becoming overweight and gradually obese.

And so that, in fact, is, increased for us compared to the general population. And so, you mentioned a few times the fasting American diet, in how it's designed.

How Nutrient Sensing Drives Growth vs. Rejuvenation

I think we should maybe step back a little bit more, and explain you you talked about nutrient sensing, and how the fast making diet was designed. So what is nutrient sensing and why does that matter?

Yeah, nutrient sensing is a mechanism by which, every cell in the body actually, perceives whether there is food coming into the body or not. You can imagine that every cell has these years.

And I, on the surface of the cells that says, hey, is there, sugar coming in? Is there proteins coming in? Is there a smaller building block of the protein called amino acids?

Are there? All around. And the reason for these years and eyes of the cells is so that it knows when to grow versus when to rejuvenate. And so you can imagine when, after a large meal, these eyes and years get pricked up and they they sense these nutrients coming through.

It tells the body, okay, it's not time to rejuvenate, but rather it's time to grow. And that's actually a very important signal. So, we probably are when we're young.

Do we a lot more growth than rejuvenation. Yeah. And then when do we switch over into more rejuvenation and less growth? I think it it's, you can imagine. Right.

So young kids, teenagers, their bones are growing, their muscles are growing, right? Everything is growing. And that's a good thing. You want to turn on those growth pathways.

But when we become adults, when we become adults, we need to now balance growth with rest and rejuvenation. That's how we're going to live long and strong, right?

So we can you can imagine, you know, it's almost like, a car you're driving now. You cannot always rev, you know, your engines and putting the, the, you know, sort of, pressing your, your, your, your accelerator all the time because something is going to get spent and you can imagine the engine is going to work too hard and it's going to overheat if there's nothing, no stops it.

If you take into the shop for maintenance work and repair, that's exactly right. And then your tires can work now. And this is exactly what happens to us in a society where we're driving such, a goal such as performance and function.

We're almost sacrificing longevity. Just think about the tire. The faster you're running, the faster you're getting the car to the destination, the quickly it's going to, wear out those tread on the tires.

And that's exactly where our society is. We are constantly asking for performance, right? And function, but we forget that that lasting long is equally important.

So when you have all these nutrient sensors constantly going, gaming, getting wrapped up from all the endless nutrition we get, you know, it's, well, study now that Americans eat all around the clock.

We wake up early and then we use snacks and we either meals and we, you know, dinner. And then we have another snack before we go to bed. The only time, really, that we get time to rejuvenate is actually when the time we're not eating.

And that time has gotten smaller and small. That window of time has gotten smaller and smaller. And so what is really determining that growth pathway versus rejuvenation pathways?

Are these nutrient sensing pathways or these nutrient sensors. And the nutrient sensors are basically, determining that their carbohydrates around. So sugars around or proteins and amino acids around that because I need, carbs and protein, to work.

And so if I don't have the carbs, I don't have, the proteins, that's when my cells can get into this repair work. And so let's cover the other, the opposite.

Right. So if you think about life, it's all about the in in the in in many ways. Right. So you you have a lot of nutrition,

but you also got to give body a time to rejuvenate when these nutrients insulin are not sensing these nutrients floating around.

So i.e in times of fasting the cell says okay there's no food coming in. It's not time to grow. It's not time to reproduce, but it's time to recycle, to clean up.

That's a great time for the cells to say, okay, let's rejuvenate, let's clean up, let's recycle. And the longer the period of time of fasting, the more stress is on the cells to force that cellular, cleaning.

In the in the scientific term, we call that cellular autophagy. So in fact, when when the cells does not see food for more than 2 or 3, probably four days, the cell says, well, how am I going to survive?

Well, I have something inside my cells that I can burn off as a source of energy, and so begins to look for things that are less valuable, valuable, more disposable.

For example, misfolded proteins, all the mitochondria, cellular, organelles that are a little bit older. The cell, had learned to burn those things up as a source of energy first, hoping that food will come the next day, maybe the day after.

So that process can imagine that it really triggers that cellular cleaning, also known as the cellular autophagy, which won the Nobel Prize in 2016. And the the applicability of that knowledge is, is that almost every cell in this world goes through that when there's tons of, starvation in the environment, the cells go into that hunker down mode.

And it so happens that hunkered down mode is also a stress resistant mode, meaning that during that time, because it's not growing, it's able to actually be more defensive, take a take a more defensive position.

They're able to withstand higher, oxidative, oxidative stress. They're able to to resist those stress coming from the outside. So it's really a self preservation mill.

Now you can begin to imagine while growth is important but there's cellular rejuvenation that stress resistance smell, also need to be triggered from time to time in order for us to live long and strong.

Fasting, Autophagy, and Cellular Stress Resistance

So this is probably why, the the practice of fasting, going without food, is really culturally so present all across the globe that many different societies, many different, religions had, structurally some period of, restraint, in terms of, eating, you know, thinking in the Christian tradition, during lent, there was always, you know, some calorie restriction, Ramadan, their fasting patterns.

I'm not as familiar with the fasting patterns, in, in the eastern, Asia. But I certainly have the sense that many, many societies have periods of purification and fasting practices.

And I think, you know, just like in the in the old days before the scientific methods came about, a lot of the, of the, the practices really came out of observation of nature.

And then you can imagine that the monks and the and the, the priests, they went off into their sanctuary and to fast for days to get closer to their spirituality.

They also must have observed, many of the health benefits and, and now I think we're, we're, we're we are far events now, today, not only do we know what fasting does physiologically to the body, but we also now know singularly what happens and therefore, modern people no longer need to fast with water only for days.

And, well, you know, going through that suffering and so usher in the age of the fasting mimicking diet. So, so, interrupt you for a moment. So I used to do water fasting, a lot, you know, alone.

I'd go three days. Five days. I went seven days. Yeah, that was really tough. But I did feel really, amazing at the end. But it was a very hard, getting through that water only, it's so, that was.

And I can't do that anymore. I'm that's it's too hard. So quite relieved to hear that, you guys have designed another way to get the cellular benefits without having to be, water only fast.

You know, a lot of people would do, like, a day or two days of fasting. But the reality is, in order to get the cellular benefits, you really need to go a little bit longer.

And that's where the rubber gets really. And that's really hard. Yeah, it's really hard. And is that too bad two days. That too bad. We get to three days like oh my gosh this is so hard.

All the the third day we often call it the bankruptcy day because that's when the cell says I'm totally bankrupt, that have no more nutrients coming in from the outside.

And then he has to do a drop dramatic, drastic changes inside the cells in response to that. But but I think, you know, this is why in modern medicine and modern science is really comes in handy, because we know what happens when you fast which nutrient sensing pathways are being shut down, and we know exactly how much nutrient does it take to shut down those nutrient sensors.

And so now if we provide the right nutrient, right, nutrients in the exact formulation and dosage, now, if this is the threshold for triggering those nutrient sensors, what if we provide food just below that threshold?

It's almost like you can fly a plane under the radar. And so people think that, oh, there's no, planes flying, but you're actually flying under the radar.

You're just not being detected. And that's the signs of the fasting mimicking diet by providing nutrients in specific formulation and dosage below the detection threshold of these nutrient sensor, these eyes and years that we talked about on the surface of the cells.

So the cells can actually go into that rejuvenation, that stress resistant pathway for a couple of days, and thereby complementing the growth cycles that were on interrupted by these periods of fasting that's mimicking, that's being mimicked.

And that's really the best of both worlds. And again, for the listeners, I've done I've done fasting both ways. I've done water fascinated that for many, many years.

And then I've been doing using the American Diet. It is so much easier. It's you're you're still hungry. It's still. Yes. It's still a little uncomfortable.

And, on the fifth day, you're really glad it's the fifth day. I can see the end. I know I'm going to get, food again. But this is so much easier, than the water.

Only fast. And knowing that I, I'm going to, we'll talk about these cellular benefits that are happening to myself, as I go through the refilling phase after the fast food can diet.

So let let what happens, what's happening to my cells? I I've completed my five days of fasting. And now I've graduated. I'm going back to food. What's happening in the cellular level?

Yeah. So, you know, when but as you take a little, closer to look at, the fasting is actually a double edged sword. You think about it, right? It's a stress on to the body.

The body senses that there's there's no food coming into it. It does a dramatic change by recycling the older parts for new parts. But that's really only half the story, because when you get rid of these parts, you need to replace them back in order to be to, to, to, to complete the cycles of rejuvenation.

You know, I often use this example, I live in New England. When it's cold in the winter, let's say, you know, God forbid that, let's say your thermostat breaks down and but you get a fireplace so you can still keep warm.

And so you, you will throw some wood in there to keep your, you know, your family warm during the winter, but you certainly not going to use you got throw in your most expensive furniture there for the night.

You probably going to do throw something that's, you know, a wobbly chair or you know, piece of furniture that you could, you know, that needs replacement anyways.

But think about what happens now. You throw away that wobbly chair you need you still need a chair in the house. So you're going to go and buy a new chair.

And then now you recycle your old part with new parts. Now that's exactly what the cell does when the food becomes available again by day six. Now the cells is going to incorporate those nutrients and begin to build the parts that you recycle previously.

Why Refeeding Matters After a Fast

So now you all part is gone. Now your new part is in there. Think about it. There's almost no other biological process in life that does that kind of exchange, that cellular cleaning, the cellular recycle inside.

This happens every time when nature deltas with a hand of starvation. The cells have learned to respond by taking that that the challenge in the body environment turn that into a blessing.

Turn the stress of no cell activating defense mechanism and recycling mechanism. Now, by day 67, when you were reading again, you're replacing them back, right?

You're replacing those cellular organelles back. You're growing new mitochondria. And that is really what I call the true miracle of life. Starvation was supposed to kill us.

The cells survive, but now the cells become younger and stronger. And so that reseeding is as important as fasting. A lot of people over think that, oh, let's stretch their fasting for as long as possible. That's not true.

Just like you cannot run a marathon every single day, you need rest and nutrition right in the in the of life. Same thing when you fast. It's good. But equally important is you got to give good nutrition back.

So you recycle the old parts with new parts. And that's how we live long and strong. You know, I like to think about, this issue of, recovery. I was an athlete before I became a physician.

I in retrospect, I realized I was training much too hard. I was overtraining, and I did not spend enough time in the recovery mode. And, athletes, it's not uncommon athletes do that.

I've done that. I think they do a little better job now of balancing training and recovery. But this is, our souls need that training and recovery period.

That mild to moderate stress in this case, this was, mild to moderate stress of starvation, with recovery period during that re feed. Well, I want to tie this back to that first paper we were talking about when, people were having, we put on too much weight.

We now have some cellular changes related to, that excess weight, which may include disruptions to smell and taste, which heralds increased risk for cognitive problems in the future.

People have gone through six cycles of the fasting, making diet. And it is it the rejuvenation phase that they're, repairing some of the nervous system structures, in this case, the, sensory organs of taste and smell that they are now working more effectively?

You know, I think this study does not particularly answer the, the mechanism question, you know, how does it do that? But now we have had multiple studies showing that people lost weight.

People lost visceral fat people, maintain muscle mass while on fasting diet. We have studies that showed now, for example, the skin gets rejuvenated. Multiple cycles of fasting, mimicking diet.

Now we are seeing, for example, that, in this study that we just talked about, diabetes medication gets decreased. And also blood pressure medicine getting decreased.

And we are now also showing. Now the smell gets restored and the taste gets restored. So is there one theme that can cut across all of these things. Right.

So in in in the practice of medicine, we often wanted to find a unifying mechanism to explain everything. Right. So, rather than attributing to different mechanism, for different results, that the best way to unify a lot of these medical observation is asking the question, what is the single central mechanism that has all these changes on the skin in the metabolism, but now in the senses?

A Unifying Mechanism for Metabolic and Sensory Benefits

And, we believe that, you know, after looking at all these research, it is got to be that cellular reprograming and cellular rejuvenation. So instead of, for example, somebody would take a medicine for cholesterol, a medicine for blood pressure, a medicine for diabetes.

What if you address the upstream issues of cellular aging? If you address the upstream mechanism? And let me use an example, you know, you might see, you know, a whole a whole whole big land, right?

With lot of rivers and branches and they're all polluted. And what what can you do? You can certainly go to the end of each of the blood in each of the rivers, and then try to clean up each of the branches.

That would be a lot of work. But you could also go to the upstream and really clean up the upstream right, prevent any debris from coming from the upstream so that now you're downstream becomes clean.

This is exactly sort of the, you know, sort of the concept in, in functional and integrative medicine that is really addressing the root cause of the problem.

What if many of these issues, the loss of smell, metabolism, insulin resistance, diabetes is all because the cells get older and less functional over time.

What if you can make them older? What do you can make them function better by recycling old parts of new parts. And if that process happens to to take place in every cells in the body, in the muscle cells, in the fat cells, in the liver, cells, in every cells in the body, skin cells in the nose, the taste cells in the body.

If there's one process that stress all these cells and cause them to rejuvenate, then you have one process that can address many of these age related problems.

Sounds really. That sounds really like science fiction, right? But I think there are two experiences that you and I all have. Every audience have experience that, that, that, that power of and, that, that what that addressing the root cause and that is, for example, when you sleep well, you know, every organ system gets better.

How do you know? Try to try not sleeping for two days. Your mind doesn't work. Your function, your muscle function works, you know, and your endurance goes down.

Everything goes down. So that's a strain intervention. That's lifestyle based. Let me give you a second example that all, all of us experience and that is exercise.

How is it exercise lowers blood pressure, improves insulin resistance, decreases cholesterol, improves cognition, improves mood strings, muscles strengthen your bones and everything else.

It's upstream, you see, and it affects every cells in the body. I want to propose to you that now sciences and cover a third mechanism that's universal.

That's part of our living supposedly be part of our life. And that is the cycles of fasting. And we feel it's always been around since the day, you know, cells have existed on Earth, and now we're tapping into their very upstream.

So by recycling these cellular components and by reseeding, by changing, replacing old parts with new parts, the cells now get better. They function better, they function younger.

And that's why you're seeing the drop in blood pressure medicine, the drop in diabetes medicine. You're seeing the improvement in insulin resistance. You're seeing the improvement in skin.

Now we're showing, you know, so recovery of loss in the senses of the taste and smell. Isn't that beautiful? That is exactly right. What what nature intends us to, to do.

And I think that is what our ancestors did for probably millions of years. We. It was hard work to get our food. We had to work really, really hard. We got our food.

We're able to eat, you know, comfortably, you know, in our small clan for however long that food lasted. And then we had to go out and work hard and then gathering food, you know, the hunter gatherer.

So I think we were probably doing, fasting, because our food supply would be diminished. Then we'd have to recycle, would send out, the men to, for the longer journey.

The ladies would go on a shorter journey, with the, kiddos, come back to our camps, and, go through this cycle of fasting and re feeding, fasting and feeding.

You know, the other thing that's sort of interesting is in the hunter gatherer society. Yes. It would the, the time studies show that they actually had a little more leisure time then, modern humanity has.

I thought that was, pretty interesting as well. So, but I think we have been doing, fasting and re feeding for a long time. This very recent approach of eating all of the time throughout the day, is a new innovation that has been very harmful to us.

Yeah, for sure. And, you know, we used to, as, as, as a human species, we there was no refrigeration, there was no lighting, no lights in the evenings.

So people used to eat when the sun rises and, and stops eating when the sun goes down. And but we would make the case, right? Yeah. And, we were very tied to the, light dark cycle.

Practical Use of the Fasting-Mimicking Diet

Our circadian rhythm was, much better. And certainly whenever I've gone camping, my sleep is much better. And, Yeah, I think that's probably true for most folks.

Well, Doctor Shu, this has been, really a wonderful conversation. What? I, we should wrap this up. How do people find information about the American diet?

I know there are some commercial products that make it far more convenient, for people. Should we talk just briefly about that and tell people how they could find, these products?

I think, to drive health and wellness. One key aspect as a physician is standardization. You know, we yes, people

do it on their own. They can try their own.

But, you know, it's difficult to get the right dosage, right, the right components. So, on the maker of the product, proline has put together this five day fast moving diet and for you to use, and that will mimic the appearance of a five day by providing foods each day.

Marty one to day five. So it's thoughtless. You don't even have to think about it. There's no shopping list. And and and now over a million people have tried proline in the marketplace for health and wellness and longevity.

And so so it's a do it yourself kind of a kit. You can order and so on, so forth. And you can go to prolong life pro long life Live.com now, for those of us who, who are, who may struggle with, particular metabolic health diseases like diabetes or obesity, hypertension, prediabetes is and we're fasting on medication may not be safe because now since it works, you're going to have somebody to titrate those medications down for you.

We have created a, a, a package, a solution that incorporates not only the fasting mimicking diet, but, a physician oversight, an RDA registered dietitian that will hold your hand through that journey.

And that's typically for diabetes, will be a 12 months journey. And the aim is to not use medicine to control diabetes, but using the cycles of fasting, mimicking diet together with pillars of lifestyle medicine, the goal is to get you to better diabetes control without the help of medicine and insight.

The goal is to reduce the number of medications that patients with type two diabetes are on and and it's not surprising people with type two diabetes, on average, take about 5 to 6 medicine every single day.

But now, by rejuvenating the body, by making this, the cells work, function better. Now. We have now three clinical trials to show that not only hemoglobin A1 improves blood pressure, it improves, but also medication gets reduced, insulin resistance gets reduced.

And by the practice of lifestyle medicine, exercise, stress, community nutrition and sleep, we're able to now turn back. Right. Sort of that in a way, the scourge of type two diabetes and provides freedom for those who are struggling with not only diabetes, but also metabolic diseases.

And for that, you could go to El Neutra. There's Al Neutra health.com, El Dash Neutra Healthcare. For more information. Well, well, Doctor Shu, this has been wonderful.

Thank you so very much for this. Really great, information. Thank you. Doctor. Was always, such a pleasure to have a conversation with you.