Stanford Professor Explains Why 6 in 10 People Are Sick Transcript

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Introduction and Food as Medicine

Today, it's my pleasure to introduce Dr. Tomiko Katsumoto, a rheumatologist and clinical associate professor of medicine in the division of immunology and rheumatology [music] at Stanford. Dr. Katsumoto will share with you how certain foods are anti-inflammatory, meaning they help fight inflammation [music] in our bodies.

Hey everybody. So, we've planning to watch this video for the last few days. From a super interesting talk with Sarah and Shabnam. I'm going to watch it together because apparently it's one of the most impactful go-to speeches in lifestyle medicine in 2026 so far this year. It includes what's fueling disease and most importantly what you can do about it.

>> I'm so looking forward to speaking with you today about something that is near and dear to my heart, which is food's protective power against disease. The concept that food really is medicine. Here is my disclosures. I do some consulting for Genentech and Sonoma Bio. I have some research funding from Sanofi. And I want to say we received an unrestricted gift from Beyond Meat, which means unrestricted, they don't have control of what we do. So, just going to mention that. Okay. In the next few minutes, what I would like to do is frame this presentation in the context of questions. Let's start out by talking about inflammation and why should we care about this? This hits close to home for me because I'm a rheumatologist and I deal with chronic inflammation all the time.

>> [snorts] >> We're going to then going to talk about what an anti-inflammatory diet is and then I'm going to try to convince you of why you should think about following this. And finally, very close to my heart, why do we have to what does diet have to do with planetary health?

All right, let's dive in. What's inflammation? Why should we care? So, as a rheumatologist, arthritis is the most common condition that walks into my office. Approximately 21% of adults, so like one in five of us, has some form of arthritis. And according to this graph, you can see there's this increasing prevalence of arthritis time.

Inflammation, Arthritis, and Chronic Disease

Now over 63 million people in the US. And this number is expected to increase substantially in the next few years with our aging population. This represents substantial cost, significantly threatens the quality of life for millions of people. So, I'm excited to share with you today a recent study that was done by our Dutch colleagues looking at patients with arthritis. This was called the Plants for Joint Study. And by joints, I mean the anatomic body joints, not the other kind of joints.

This was a randomized controlled trial where they randomized half of the participants to whole food plant-based diets along with lifestyle modifications versus control. And as you can see on the left, the rheumatoid arthritis patients who were in the Plants for Joints group showed a highly significant improvement in their arthritis over the course of the study.

And this with this effect was even more pronounced in the seronegative RA group. These results resonate with me. They're consistent with what I see in my clinic patients when they start to make dietary changes and eat more plants.

On the right, we see a study where they looked at osteoarthritis. This is the most common form of arthritis. And it turns out we have very few effective treatments for osteoarthritis. So, this result was really quite striking and highly significant. So, what this shows us is that plant-based diets can be extremely powerful and food really can be medicine. We are facing an epidemic of chronic disease in the United States. Currently, six out of 10 adults have one chronic disease. Four out of 10 adults have two or more chronic diseases. The most common diseases we know about are cardiovascular disease, diabetes, cancer, Alzheimer's. And there's a very short list of high-risk behaviors. The primary driver of chronic disease used to be tobacco, but guess what? Now, poor nutrition takes the

cake, literally, as the leading cause of poor health. So, when we look at the standard American diet and the percentage of folks who consume the recommended minimum amounts of fruits and vegetables, you can see it's only 12.3% and 10% of adults that meet these guidelines. When it comes to adolescents, these numbers are in the single-digit range. So, we are far from where we should be in terms of our healthful eating.

Here's a picture of a lot of familiar foods. Check it out. Pizza, hamburgers, fried foods. These are the things that make up our standard American diet.

We're going to call this SAD. Our diets are extremely high in ultra-processed foods, high in animal products, and therefore they are highly inflammatory. And they drive a lot of disease.

We have a public health crisis of epic proportions. These are graphs showing the percentage of adults and teenagers who meet criteria for obesity. In 1960, only 13% of adults were obese. And now, it's 42%.

In the 1960s, only 5% of adolescents were obese. And now, it's almost 20%. One in five. So, what's more is that now 72% of adults meet criteria for being either obese or overweight. We have a problem.

We're most familiar with obesity as being associated with conditions like cardiovascular disease or stroke, diabetes. But what's less well appreciated is the fact that obesity can be highly associated with cancer.

This is another condition that I see commonly in my rheumatology oncology clinic. In fact, I deal with a lot of patients that are on immunotherapy. It turns out that the NIH has identified 13 cancers that have been definitively associated with obesity listed here. As you can see, a lot of these cancers are actually related to the gastrointestinal tract. And so, we have to wonder about the role of food and our microbiome in driving some of these cancers.

Anti-Inflammatory Diet Patterns

I also really like that she threw in the stat about tobacco used to be the leading cause. What was it? Leading cause of death or leading cause of cancer? And it's now actually diet, eating processed foods that is leading cause. That's so wild. Leading cause of disability is diet. Absolutely. When we're seeing colorectal cancer being the number one leading cause of cancer in adults 50 and younger. And that's not because someone has someone in the family that has had cancer. That's because of a lifestyle factor. It's how people are eating, how people are living. So, you you have the control. Take control of it now.

Let's take a moment to think about the role that inflammation might be playing in all of this. Acute inflammation is an appropriate adaptive response. We get a cut, we need inflammation to come in to help us heal that wound. We get an infection, we need inflammation to come in and help us clear that infection.

What we're talking about though is chronic inflammation. There's a number of things that can lead to systemic chronic inflammation. And they're shown here on this very busy slide. I apologize for the people in the back.

But probably one of the biggest drivers of chronic inflammation is something we have control over, and that is diet. Importantly, poor diet is linked with dysbiosis, meaning a dysregulated microbiome.

We're starting to learn how systemic chronic inflammation can can lead to a multitude of diseases, several of which we're going to be hearing from Dr. Wu and Dr. Longo about the heart, about the brain. But also, like we heard, metabolic syndrome, type 2 diabetes, even depression can be inflammatory. And of course, autoimmune disease is highly inflammatory.

All right. So, what is an anti-inflammatory diet? And why should we eat this way? You'll be very disappointed to know I'm not here today to tell you what the perfect diet is for you.

It turns out that diet is an extremely personalized thing and there's not a one-size-fits-all approach. That being said, there's several examples of diets that can be more anti-inflammatory. And here, what I'm going to show you are

some suggestions from Dr. Andrew Weil, who is the father of integrative medicine. The base of this pyramid is of course your healthy vegetables and healthy fruits, which should be consumed generously. Then you've got your whole grains, not refined grains, your beans and legumes, which are great source of protein and fiber. You've got healthy fats, talking about olive oil, nuts, seeds. Fish and seafood should be consumed in moderation. And I would always suggest looking at the seafoodwatch.org website just to make sure what you're choosing is safe and sustainable.

Whole soy foods such as soybeans and tofu can be consumed one to two times a day. Other proteins such as eggs and cheese and lean meats can be consumed but limited maybe to one to two times a week according to this pyramid. Healthy herbs and spices can be unlimited, two to four cups of tea a day, and supplements daily. And finally, healthy sweets and red wine should be consumed sparingly. So, that's what Dr.

Blue Zones and Plant-Based Longevity

Weil has to say. It's such a kind of like hot topic at the moment, inflammation, but also it's linked to chronic disease, cancer, autoimmune disease. You just hear more and more and more the prevalence of these diseases.

It's also just explained in a really good way, isn't it? It's explained clearly. Like the diagrams really help me actually visually understanding like what she's talking about. And like she said, the link is there. I think a lot of people don't want to hear it, but the link is very, very clear and the science is there. So, it's definitely something we need to focus on. I want to talk about the blue zones. You guys are probably familiar with this. This is a great book and a great series on Netflix by Dan Buettner, where he studied five regions of the world with the highest concentration of centenarians, people living to be 100 years old. One thing that he noticed about the diets of people in these five blue zones is they were 95 to 100% plant-based.

The reason this is so important is that you will never be able to get to run a diet study for 100 years, right Christopher Gardner? In fact, most diet studies do not even have that significant of long-term follow-up. So, what this means is the Blue Zones diet is a really key dietary pattern that holds a lot of credibility. So, let's take a look. When you look at the Blue Zones diet, interestingly, it resembles the Dr. Weil anti-inflammatory diet pyramid in a lot of different ways. Daily, there's a bunch of whole ingredients, whole fruit, whole vegetables, whole grains, beans and legumes, six glasses of water, one to two handfuls of nuts. I just want to point out one theme across all five of the Blue Zones is each of those those the zones had at least one half to one cup of beans or legumes every day. And that was a staple for everyone. It's a great protein source.

So, here are some of the weekly suggestions. So, they say fish maximum three times, eggs less than three times a week, and refined sugar maximum of seven tablespoons seven teaspoons a week. And then yeah, I know I like sugar. Um and finally, meat and dairy products are consumed less than five times a month, which means approximately once a week.

So, there's numerous well-documented benefits of whole food plant-based diets, and I'll just read you some of these here. The highlights are decreases in overall mortality, weight loss, improvements in lipid profiles, dec-decreased risk and even reversal of cardiovascular disease. I'm going to say it again. Decreased risk and even reversal of cardiovascular disease, decreased risk of several cancers, decreased risk of diabetes, even improved migraines. Who knew? Hot off the press, the vegan twin study done by done by my dear colleague Christopher Gardner. Spoiler alert for those of you who've not yet this amazing Netflix docu-series, but there were even signals that a vegan diet might be associated with slowed aging.

Fiber and Gut Health

So, there's numerous other health benefits of whole food plant-based diets. More studies are coming out regularly. She even brings up like things like the Blue Zones, right? And when we think about Blue Zone diets, where people are living to be centenarians, or they're averaging at least 10 years longer than the average life lifespan, there are significant lifestyle factors that are contributing to that, right? And what's the crux of it? Is their nutrition, how they live, how they live in their community, right?

So, lifestyle is is massive for it. And I think when we talk about whole food plant-based, we're talking about a diet that's actually really rich in antioxidants, right? Phytonutrients, in fiber, right? So, what we're showing here that this is a blueprint for longevity, and we want people to be healthy and to be armed with the evidence that allows them to make really good choices. So, this is a great video to watch for that. I want to take a moment to celebrate fiber. Fiber is one of the best things ever.

Note that fiber is only found in plants, not in animal products. And here are some examples of the amount of fiber found in several foods. We should be aiming to eat about 28 to 35 g of fiber per day or more. So, for example, if you ate about five of these different foods, you would be doing a you'd be in the right ballpark in terms of fiber. It turns out that currently most of us Americans are deficient in fiber, and we tend to eat an average of 15 g of fiber or less. In terms of the many benefits of fiber, I cannot sing enough the praises of the fiber of fiber here, but it can increase your feeling of satiety, so you tend not to overeat. It Believe it or not, fiber can actually increase your metabolic rate, and it can promote promote loss of calories in your stool, such that weight loss is promoted. Who knew?

Fiber can help to promote a beneficial gut microbiome, and this leads to the production of short-chain fatty acids that are super important for maintaining a your gut barrier integrity and immune homeostasis, so fighting inflammation.

Fiber can also improve the glycemic response to food, and it can reduce the risk for heart disease, diabetes, and cancer. Fiber's great. Fiber maxing.

That's a new thing, right? I love this trend, which is such a non-TikTok trend, cuz actually going viral like a year or two ago would have only been carnivore, this meat that, Rogan, whatever. And now it's fiber maxing. We've chronically been prescribed a low amount of fiber in our recommended dietary allowance, right? It would averaging anywhere between 21 to 25 g per day. And new research is starting to show having minimally 40 g per day is what's recommended for better metabolic function. I love that that's becoming such a key focus, because like she said, doctor doctor says is that you don't get fiber in animal products.

Planetary Health and Climate Impact

It just veers people towards eating more plants without having to say those niche identifying words like vegan, vegetarian, plant-based, right? It gives them the nuance of a little bit of education, but also showcasing the importance of >> And it also, interestingly coming up, talks about the environmental benefits of plant-based food, which is super interesting. We're going to switch gears a bit. We're going to try to answer the question, what does diet have to do with planetary health? News flash, our planet is not doing well. Here's a graph that shows the sea surface temperatures that have been gradually increasing over the past several years. However, last year, you can see this red line that shows how rising ocean temperatures went off scale. And 2024 has continued this concerning trend. These temperature changes are alarming and unprecedented and are caused by excess greenhouse gas emissions.

We have set some disturbing records when it comes to heat and climate change, and this highlights the urgent need for action. So, where are all these greenhouse gas emissions emissions coming from? I want to introduce you to a website Project Drawdown, based on the book by Paul Hawken, drawdown.org. I encourage you to all check out this website, which is a fantastic educational resource on climate change. You can see this is a pie chart of all the global sources of emissions, and what is striking is that food represents about a quarter of our carbon footprint, right up there with electricity. It also turns out that the vast majority of our food emissions are related to animal agriculture. I'm going to show you graphs. This is the per person consumption of meat since the turn of the century, and we're now eating about 200 lb of meat per year.

Here's chicken, 64 lb of meat per person per year. And here's cheese, 37 lb per person per year. I don't know about you, but I find the slopes of these curves kind of concerning. So, how much would going plant-based help the environment? Here's a helpful graph showing greenhouse gas footprints of various diets. And what I just want to highlight is that if you were to go vegan 2/3 of the time, not 100%, you would reduce your emissions by 60%. If you went all the way, you would reduce your emissions by 85%.

I want to come back to Project Drawdown. They rank ordered the list of high-impact climate actions for households and individuals, and guess which two came out on top. Reducing food waste and plant-rich diets. These were higher than solar, LED lighting, and even electric cars. So, I just want to make a quick plug also for reducing food waste and emphasizing the importance of composting to minimize methane emissions from putting food in our landfills.

Yeah, but what's the number one cause of food waste? It's feeding crops to animals. That's a massive amount of food waste. So, they're kind of linked.

Yeah, exactly. What is it, 25 kg of grain to produce 1 kg of beef? It's crazy inefficient. And then the water that that takes is like gallons, isn't it? >> It's crazy, which is why plant-based meats are better for the environment, but also better for human health. So, I get the question about plant-based meats a lot, and here's the relative carbon impacts of various meats versus plant-based meats. And you can appreciate that plant-based meats have a 30-fold 36-fold less carbon impact compared to regular meat. My patients ask me, "Well, but these are processed foods." And this is where it's challenging, because plant-based meats, they're not soda, they're not candy, they're not Twinkies. It's helpful to refer the SWAP Meat study by Christopher Gardner, which showed that there were improvements in lipid pro- lipid profiles of people that ate plant-based meats compared to regular meat. And they basically have no cholesterol, they have similar amounts of protein, and they have fiber and and other nutrients that regular meat doesn't have. So, basically, I wanted to say, if you choose a burger, you feel you have a hankering for a burger, I would recommend choosing a plant-based burger.

Ultra-Processed Foods and Gut Inflammation

So, here's a powerful graphic from the World Resources Institute about shifting diets and the profound impact it could have. If the world's 2 billion high consumers cut their meat and dairy consumption by 40%, it would save the air land area two times the size of India and avoid 168 billion tons of greenhouse gas emissions.

So, what is it in our diets that might be driving this systemic chronic inflammation? This brings us to the topic of ultra-processed foods, which can be highly inflammatory. What are some examples of ultra-processed foods? So, here's a diagram that shows examples of minimally processed or whole foods on the left. We've got corn, we've got an apple, we've got cream. These can become processed into canned corn, applesauce, whipped cream. What we should really try to avoid is when the ultra-processed version of these foods, for example, when corn turns into corn chips, when apple turns into Apple gummy candies, when when cream gets converted into ice cream, right? All of these have additives and they've been significantly transformed from their original state. They're almost unrecognizable in some cases. A rule of thumb is that if a food has a bunch of different chemicals in it that you wouldn't find normally in your own kitchen, then these may be ultra-processed foods that you should try to limit.

We've been hearing headlines about how ultra-processed foods are linked to higher mortality and we're just starting to unravel the biology of what what might make these ultra-processed foods so problematic. So, I'm showing you a schematic. I know it's small. On the left what you can see is this is a normal healthy happy gut. There's a diverse microbiome, lots of bugs that live in our gut. They have a very tight epithelial barrier of our epithelium in our gut lining and there's a nice protective mucus barrier that protects all of us from this stuff. Meanwhile, you add in emulsifiers, artificial sweeteners, food coloring, and nanoparticles like titanium dioxide, which by the way we find in Skittles. And this can upset the microbiome and incite inflammation in causing the gut epithelium to be leaky.

So, the idea is that a leaky gut can allow toxins and bacteria to leak into the body and this can lead to chronic inflammation that has been associated with poor health. Hence, this highlights the importance of our food choices in maintaining a healthy and robust gut barrier that combats inflammation.

Did you know 57% of adults' diets are made up of ultra-processed food? How crazy is that? >> Really? [clears throat] >> you get that statistic? >> Ultra-processed foods account for approximately 57% of total daily calorie intake average adult in the UK according to the NIHR School for Public Health Research with rates reaching up to 66 to 67% in adolescents. Yeah. Wow. It's interesting. [clears throat] Now, when we classify ultra-processed foods, does plant-based meat also go into that category? Well, I think what she was saying is it does, but it's still better for you than the meat alternative. So, it's it's not cancer causing, whereas the meat version is. I'm just saying so

sometimes the classification system of UPFs can be called into question like you know, even canned vegetables could be classified as an ultra-processed food based off of the canning mechanisms, the sodium, things of that nature, but again, it's all on a spectrum and I think when we're talking about UPFs, we know what we're talking about, right, folks? Well, some people do, some people don't. So, it is good. That's why watching the whole video was a really good idea cuz she actually kind of breaks it down and explains it and shows a graph and stuff. But also, don't come for tofu. Tofu is not an ultra-processed food. It's minimally processed and she said you could eat it two times a day, so I will continue. I love that you bring up the tofu because you know what? It isn't an ultra-processed food, which means it's not something that causes inflammation. It's an anti-inflammatory.

So, make sure you get more of that in your diet. The thing about Dr. Katzumoto's talk, a Stanford Medicine talk, is that it's really rich with a variety of studies, right? She talks about the swap meat study. She talks about with Christopher Gardner where they did an alternative of plant-based meats to actual meats. They the twin study um she discussed the Plants for Joints Study because remember, she is a rheumatoid specialist. So, I think there's just so many ways that she brings up data that analyzes the impacts or the intervention of whole food plant-based diets and the outcomes associated with that with particular populations. She's fabulous and I I really do hope everybody gets a chance to take a deep dive into that entire video because it's it's very informative. Um you'll get a lot of good research, I think, um non-biased evidence, but it puts a lot of defense in your arsenal when it comes to data.