THE MODEL HEALTH SHOW

EPISODE 471

Superfoods With Strange Effects On The Human Body

You are now listening to The Model Health Show with Shawn Stevenson. For more, visit themodelhealthshow.com.

SHAWN STEVENSON: Welcome to The Model Health Show. This is fitness and nutrition expert, Shawn Stevenson, and I'm so grateful for you tuning in with me today. On this episode, we're going to be talking about specific foods that have seemingly miraculous effects on the human body, ranging from benefits with fat loss, to benefits with digestion, to cardiovascular health and so much more. But the catch is, some of these foods have some very weird side effects when they interact with the human body, and these side effects have remained a mystery to many people and we're going to dive in and dissect what's going on behind the scenes, and what some of these foods can do, how to utilize them in the best way and get more bang for your buck. And today, we're going to start off with one that is incredibly popular. It's your neighborhood-friendly, onion. The onion.

The onion has been utilized in cuisine for literally thousands of years, but it has this very strange side effect when we try to cut into it. Have you ever wondered why do onions make people cry? First of all, I think it would be helpful to know that we actually have three different types of tears. We have three different types of tears. First of all, we have basal tears, and basal tears are in your eyes all the time. They're there to constantly lubricate, nourish and protect your eyes just in your day-to-day livelihood, and basal tears act as a constant see-through shield, protecting your eyes from the rest of the world. Now, these tears are what give your eyes their constant gloss. You got that gloss and you got the matte finish. You don't want the matte finish for your eyeballs, you want the glossy. So that's the first type of tears. They're called basal tears. The second type of tears are emotional tears. Emotional tears are the types of tears that you release when you're overcome with emotion.

Emotions make you cry sometimes. Shout out to H-Town. Scientists are now learning that our tears, when we shed emotional tears, there are many different biological processes that are taking place. In fact, researchers have recently discovered that when we shed tears, there are actually traces of stress chemicals when we're having emotional tears that we shed, indicating that this could possibly be a way of relieving stress. Additionally, some studies suggest that crying stimulates the body to actually release endorphins, i.e., these glorified, feel-good compounds in our bodies to, again, help us to relieve stress.

I don't know if you've ever had this experience, but for many folks, after having a cry, after having a good, deep, sometimes just ugly cry, you actually feel a lot better. And also, when we're overwhelmed with happiness and joy, those tears can even make it more impactful and more visceral. Researchers at UCLA noted that crying helps to activate the parasympathetic nervous system, potentially restoring the body to a state of homeostasis. Crying can potentially help to bring us back to balance.

Now, we've got our basal tears, we've got our emotional tears, and finally, we have our reflex tears. And reflex tears are formed when our eyes need to wash away harmful irritants, such as smoke, foreign bodies, like dust and debris, and in this case, what we're talking about, onion fumes. Your eyes actually release your reflex tears in larger amount than the basal tears, thus this is why they can come streaming down your face, and they often contain significantly more antibodies in our reflex tears to defend against any kind of foreign compounds or microbes that our eyes might be interacting with.

So what's going on with the onion that's causing this interaction? The onion itself, it's a bulbous-shaped vegetable that matures underground, and the union has developed, it has evolved, its own defense mechanisms to help to protect it from being overeaten by animals that might dig it up before its maturity. And this is the thing about all life; life finds a way. Just because a plant can't get up and run from you doesn't mean that it doesn't want to continue on its species, to mature and to be able to have little onion babies. Every life form wants to continue on its species, and so onions are no different, and so it's evolved these incredible defense mechanisms to help to protect itself.

Now, when an onion skin is broken, it begins to spit out, spew, certain enzymes and sulfenic acid, and these compounds combine to produce propanethial-S-oxide. We're going to call it PES oxide for short, PES oxide, which is an irritating gas. It's an airborne sulfur-containing organic chemical that is similar to tear gas, thus the name. PES oxide, when it gets pessed off, PES oxide turns into sulfuric acid when it touches the water layer that covers and protects your eyeballs.

Now, based on genetics and epigenetic influences, some people are more likely to cry when cutting onions than other people. Some folks barely even shed a tear, while other people can experience burning, itching and even tingling when that acid interacts with the eyeball. Now, onions have evolved, again, this evolutionary adaptation, and we've developed these evolutionary adaptations in response to them. So the question is, is the onion still a viable food? If it's so apt to try to defend itself and not be eaten, is this actually a viable food source? Crop scientists are saying they don't care what the outcome is as far as human health and the onion. Through genetic manipulation, genetic modification, genetic engineering, scientists have actually recently discovered a tear-free onion called the Sunion.

Sun. Whats up, sun? The Sunion. Now, already this might raise a few red flags. Is it natural? Well, no. Will it interact with your cells differently than a natural onion? Well, yeah. Is it safe and equally beneficial as a natural onion? Well, we'll have to wait and see, but just to let you know, they've taken the tears out of cutting onions by creating the Sunion. Alright, is this some Frankenstein-type stuff? Maybe, I don't know, but I just thought I'd throw that little fun fact in

there for you. Now, let's talk about the benefits that are garnered by the human body when interacting with a natural onion. Now, a lot of folks don't realize this, but onions are a potent source of an antioxidant called quercetin, and it's highly concentrated in onions versus most other plants. And quercetin is a powerful anti-inflammatory that's been found to reduce the risk of cardiovascular disease in a randomized double-blind, placebo-controlled crossover study.

A crossover study, this is a type of clinical trial where study participants receive each treatment, getting the treatment and getting the placebo, and also having this done in a random order, so it's one of the very best types of studies. And this study was published in the British Journal of Nutrition. And they found that a concentrate of onion quercetin was able to significantly reduce ambulatory blood pressure of hyper-intensive patients. And by the way, ambulatory blood pressure means they're tracking the blood pressure throughout the day, so the person's normal day-to-day activities and including sleep. And so they're tracking it, not just when you go to the doctor, which some people get a response in their blood pressure going up, just by going to the doctor. And it makes them nervous.

So this is a way to track things in a normal day-to-day livelihood to see what's the actual impact. So this was a really, really well-done study finding that quercetin from onions can really have some great benefits with our cardiovascular health. Also, onions are a well-documented, incredible source of prebiotics. Prebiotics are necessary to help probiotics or friendly flora, friendly bacteria, to proliferate and have a healthy ratio of friendly microbes to more of the pathogenic or opportunistic microbes that have a place, but we just don't want that ratio to get out of balance. And so, you could take all the probiotics you want, you have to have prebiotics, which are the food for probiotics to actually proliferate and to be able to do all the great things that they can do in your system in you for you.

So probiotics produce essential compounds that support human health in so many different ways that we're just starting to analyze more of, but onions are particularly rich in a prebiotic called inulin. And inulin has been noted to help to increase the number of friendly bacteria in your gut and also to improve your immune system function. This isn't talked about enough. The majority of your immune system is actually located in your gut. Get in my belly. It's located mostly in your belly. And this is a evolutionary adaptation because what's coming in via your mouth, can potentially, throughout our evolution, bring you better health or make you really, really sick or potentially even kill you, so your immune system needs to be there front line for sure, that's just one part of it. But also, your immune system needs to be there to help to determine what's going to get into your tissues and become you because this incredible process of eating food, we don't really think about this often, this food is going to become human tissue and/or be utilized for fuel by our human cells and our human tissues. It is an

incredible process, incredibly energy-intensive and important, so your immune system needs to be there front line to make sure that you're making yourself out of the best stuff possible.

So onions are a well noted prebiotic. Onions are also noted to be a good source of vitamin C, B vitamins, potassium, and at least 25 noted flavonoid antioxidants. And another study published in Environmental Health Insights found that eating just 100 grams of fresh red onion reduced fasting blood sugar levels in type 2 diabetics, even after four hours. These are the things that should be making the headlines. They're not putting a commercial for onions on TV while you're watching Real Housewives, they're not putting a commercial for onions on TV while you're watching the baseball game, they're putting commercials for pharmaceutical drugs that treat symptoms of disease and don't address the root cause, which according to the Journal of the American Medical Association, the number one cause of our chronic degenerative diseases is poor diet. Changing our nutrient inputs are incredibly powerful, but nobody's doing commercials for onions. I guess, it's just not sexy, but again, we've got a paradigm, got the onion booty. So how is it not sexy?

So we need to advocate more, of course, get more celebrity endorsements for real food and start to turn this paradigm into something that's more health affirmative. Now, there's a lot of... By the way, to get some of these benefits, there's a lot of gadgets that we have today that can take the tear-jerking aspect out of chopping onions. So that's one part of it, but once we've got the onions there to utilize, an easy way to add onions, you can add them to a variety of dishes. We can go on and on just for days talking about all the different stuff that you can do with onions. You can add them just... Everything from stir fries, to scrambles, to salads and so much more, in their cooked or raw form.

Adding in some onions are going to be a pretty easy way to get some of these health benefits, even if you have to shed a couple of tears to get it. Now, next up on our list of foods and food interactions that have some incredible benefits for the human body, but can also have some very weird side effects, is a food that I talk about several times in my new book, "Eat Smarter." And there's a section in the book where I dive into talking about fruits that are masquerading as vegetables and really drilling down to what a vegetable actually is. And the parts of the plant that would actually be classified botanically as vegetables, would be the roots, the leaves and the stems. When we eat carrots, radishes and beets, we're eating the roots of the plant. Leaves range from spinach to kale.

An example of a popular stem that we eat is asparagus. These green spears are a generally common food that features a great amount of the prebiotic fiber, inulin. In a fascinating study published in the journal Gut, inulin-derived propionate was found to significantly increase the release of two major satiety hormones that help to regulate our metabolism; PYY and GLP1. PYY, also known as Peptide YY, is an important gut hormone that regulates your appetite. It's

released by the cells in your intestines and colon based on the types and amounts of food coming in. And according to data published in the Journal of Physiology, PYY is believed to play a major role in reducing appetite and decreasing your risk of excess body fat storage.

PYY, Pretty Young Ying. Guys, PYY. So number one, we've got PYY, also GLP1 or Glucagon-like Peptide 1. And this is a hormone that's primarily produced in your gut when nutrients enter the intestines. GLP1 has been found to increase the feeling of fullness during and between meals by acting on appetite centers in your brain and slowing the emptying of the stomach itself. GLP1 also plays a role in keeping your blood sugar stable. There's some pretty amazing stuff encouraged by this one remarkable food. Asparagus is also notable in the fact that it's a prebiotic food that helps your gut bacteria to produce SCFAs. Alright, SCFAs, short-chain fatty acids. And these SCFAs are necessary for everything from protecting the lining of your gastrointestinal tract, to reducing rates of autoimmune issues, to even interacting with your brain, the list goes on and on.

And a specific SCFA, propionate, that we mentioned already, has been found to reduce inflammation and to help to reduce visceral belly fat. It's pretty profound. Now, all of this sounds fine and dandy, but every time I eat asparagus, why does my pee smell like I've been drinking 40 ounces of Schlitz Malt Liquor? It's crazy. Why does my pee smell like I've been drinking Colt 45? Shoutout to Billy Dee Williams. Do you remember this commercial? "Colt 45, it works every time." Does it, Billy? He's all sophisticated, got this cool vibe, nice outfit on, but then he's like, "All the ladies coming over to drink this Colt 45." Bro, that's the definition of a cash grab right there, but shoutout to Billy Dee.

By the way, have you ever thought about this? Isn't Billy and Bill short for William? So is my man's name William D. Williams? I don't know. It's neither here nor there. Alright, so scientists have actually been pondering this mystery for hundreds of years, of why asparagus causes a foul odor in urine. Even Benjamin Franklin took note in 1781 saying, "A few stems of asparagus eaten shall give our urine a disagreeable odor." His statement was actually in a letter to the Royal Academy of Brussels as he was trying to convince the academy to take on the work to, "Discover some drug that shall render the natural discharges of wind from our bodies, not only inoffensive, but agreeable as perfumes."

Basically, he wanted our farts to smell like flowers. So instead of walking through somebody's fart cloud and being offended, when you walk into that fart cloud, it's more like walking into the perfume department at Macy's. Have you ever had this experience with... They're very militant in Macy's, "Sir, sir, come here. Do you have a girlfriend, sir?" Just relax. But there's a lot of perfume smells intermingling in the air there and he believed in, of course, it is possible to get our farts smelling more, as he mentioned, "agreeable." But this was in reference, of course, to the urine smell that results from eating asparagus. Today, science has solved some of the

reasons behind this funky-smelling pee that results after dining on asparagus, part of which appears to be a compound in this spear-shaped vegetable called asparagusic acid, which is a sulfur-containing compound that seems to be found exclusively in asparagus.

When digested by humans, it triggers the production of several smell-worthy compounds like dimethyl sulfide, which sulfur is well-noted for giving things like rotten eggs and skunk spray their signature aromas. Now, where it really gets weird is that even though asparagus has this compound in it, about 40% of people don't experience asparagus pee either because they're not able to smell it themselves or because they don't make the funky pee to begin with, or both. In a study cited in the journal Chemical Sense, researchers had test subjects to sniff asparagus pee and non-asparagus pee to see if they could tell the difference.

Now, most asparagus pee was easily noticeable to most study participants. But in a smaller percentage of people, even though they ate asparagus, their pee didn't provoke any noticeable smelly difference. While in another small percentage of people, though their sense of smell seemed to be otherwise normal, they couldn't smell the funky asparagus pee smell, even if others could. So a small ratio of people, right off the bat, aren't churning out this asparagus skunk piss to begin with, while some other people might be making stinky asparagus pee, but they don't know it because they can't smell it. The biological basis for the inability to produce non-smelly metabolites in detectable quantities is still unknown. So they don't know how some people, small percentage of people, are processing asparagus and not having this stinky pee come out. We don't know how that's happening yet. But the inability to smell the odor is associated with a single nucleotide polymorphism or SNIP, which is a DNA sequence variation, which in this particular case, it's variation RS4481887 within a gene cluster of olfactory receptors. Sounds like a phone number. Alright. You got stinky pee? Call 4481...

It's also important to know, right here in this moment, it's something that we can take with us for the rest of our lives, that the smells we produce are significantly determined by the microbes that we carry in our gastrointestinal tract. Alright. Right now, one of the most powerful and growing, fastest growing fields of science, is looking at the incredible relationship between our microbiome and all areas of human health. We know that our microbiome today, we know that it has a major impact on our cognitive function. Many neurotransmitters associated with our mood and brain health, like serotonin, the majority is produced and stored in our gastrointestinal tract. Our microbes, our microbiome, our unique array of bacteria... Again, it's unique to us. Nobody has a microbiome that's the same as another person. Our microbiome is this unique collection of bacteria, and these bacteria have their own agenda. They produce their own genes. If we go gene for gene, 99% of our genes are from our microbes. Alright. Now, their genes are smaller, but they have their own genes nevertheless, and they also have their own lifecycle.

They're all working to reproduce and to colonize, and they also have... Even though these are single-celled organisms we looked down upon them for many years, now we understand that they have their own version of a nervous system in that they're able to communicate. They're able to sense pain. The list goes on and on. Our microbes have a tremendous impact on our overall health. And so, now, even with our sleep, for example, the quality of our sleep, it's well-noted that our microbiome has a major impact on our sleep quality. For example, researchers at Caltech found that there are certain bacteria that communicate with the cells in our gut that produce sleep-related hormones and neurotransmitters. Alright. And damage to these microbes can create notable damage to our sleep quality. Because also, the majority of your melatonin is produced in your gut as well. When I was in school, when I was in my university, I was taught that melatonin was produced in your pineal gland, end of story. And it's a glorified sleep hormone, but it's so much more than that. It's a major regulator of your circadian timing system, determining when all the rest of your hormones are getting produced throughout the day. Hormones, neurotransmitters, neuropeptides, the list goes on and on, digestive processes, the list goes on and on.

Melatonin is not just about sleep. But being that it is a glorified sleep hormone and it does play a major role in that, there is over 400 times more melatonin in our gut than in our brain, so we're just starting to understand how dynamic this interaction is with the health of our gut, our microbes and all manner of processes that have to do with human health. Now, one of the very best things for supporting the health of our microbiome is something that a lot of folks don't know about. A recent study published in the peer-reviewed journal Nature Communications uncovered that a unique compound called Theabrownin, Theabrownin, found in a traditional fermented tea called Pu-erh, has some remarkable effects on our microbiome. The research has found that Theabrownin positively alters gut bacteria and directly reduces excessive hepatic cholesterol and reduces lipogenesis. Lipogenesis, meaning the creation of fat. Another study, published in the Journal of Agricultural and Food Chemistry, found that Pu-erh may be able to reverse gut dysbiosis by dramatically reducing ratios of potentially harmful bacteria and increasing ratios of beneficial bacteria. This is remarkable.

Dysbiosis is one of the biggest issues that folks here in the United States, and really all over the world, are experiencing because of our abnormal diet, because of our abnormal environmental inputs, causing this derangement with the balance of microbes. This particular tea that's been utilized, again, for thousands of years, has remarkable benefits to help to restore balance to our microbes. A big reason that it's able to do this is its unique concentration of polyphenols that are well-noted to be a prebiotic supporter in supporting the proliferation of healthy microbes. And this tea is obviously incredible, but just like with everything in life, the quality matters. The quality and sourcing matters a lot. And I personally only drink the fermented Pu-erh from Pique Teas, alright, P-I-Q-U-E, Pique Tea, which uses a patented, cold extraction technology that extracts the bio-active compounds in their teas at

cold to low temperatures for up to eight hours. They care about what they're doing. And this process gently extracts the natural antioxidants, including the polyphenols and phytonutrients, and preserves them in a whole form, where all the beneficial compounds are present.

This is the purest way to extract the phytonutrients that we've been talking about for maximum efficacy. And with their incredible extraction method, they have the expanded tea crystals which are easy to use. You simply pour the tea crystals into water, stir and enjoy the benefits. I just had some Pu-erh right before filming this episode. And I love also the fact that Pique Teas are wild-harvested. It's a truly wild-sourced Pu-erh. And when it's wild-harvested, this means that the concentration of polyphenols is even higher. The concentration of adaptogens is even higher. It's also triple-toxin-screened for one of the highest levels of purity. It's triple-screened for pesticides, heavy metals and toxic mold that are common in many teas. So again, the quality matters. Right now, go to piquetea.com/model. That's P-I-Q-U-E-T-E-A.com/model and use the code MODEL at checkout and you're going to get 5% off your first order plus free shipping when you purchase one of their incredible tea bundles.

Now, another really interesting thing about Pu-erh was published in the journal, Phytonutrient Research, disclosing that Pu-erh is one of the very rare nutrient sources that has a direct, significant influence on the enzyme that unlocks fat from your fat cells called hormone-sensitive lipase or HSL. And we just did a recent episode detailing how the process of fat loss actually works, which you can get in the show notes. How does body fat actually get released from the fat cell? Where does it go? Does it get reabsorbed? Is it going to the mitochondria for beta oxidation? How does it all work? Where does fat go when it's "Burned?" So we detail that entire process but hormone-sensitive lipase is a key, literally a key, unlocking the door to release stored fat, so it's important.

Now, there are very few foods and nutrient sources, in this case, beverages, that have been clinically proven to directly improve the functionality of hormone-sensitive lipase, helping it to do its job. Pu-erh is one of those things. So this is why I truly... This is a really, really remarkable tea. And there's also another reason why I love Pique Tea is that it has over 15,000 five star reviews but also, they have a guarantee. So if you don't enjoy it, you can send it back. Send it back and get your money back. But it's one of my favorite things. I really, really enjoy it, the benefits are incredible, clinically proven, their quality is outstanding. And again, go to piquetea.com/model. That's P-I-Q-U-E-T-E-A.com/model and you're going to get the hook-up, 5% off, free shipping when you get any of their amazing bundles.

Now, the next strange interaction that certain foods have with the human body partly addresses the question as to why some people just don't like vegetables. This is particularly personal for me because I come from that guild of vegetable haters. I come from that guild. I

come from that tribe. Alright. Growing up, truly, my grandmother "Spoiled me" and growing up in the '80s, this was the golden age, the beginning of the golden age of processed foods. And just this idea of the marketing that you're just getting all the vitamins and nutrients that your growing child needs in these convenient processed foods and make sure that they take a Flintstones Multi. I had my Flintstones Multivitamin every day as well and it really inundated me at that time, which my grandmother loved me. She wanted me to eat stuff that I liked, that I would eat without much debate.

So a lot of my meals were fish sticks, chicken nuggies, and I said nuggies on purpose, macaroni and cheese, Kraft, of course, coming straight out the box, spaghettiOs, potato chips, sandwiches. This is my daily rotation and fortunately, I did develop a kinship, a tolerance for broccoli and also canned green beans. So those were the two vegetables that I would tolerate, alright, especially the broccoli. I think it's because of the Cheez Whiz with the broccoli. I think that's what initially got me involved with it, in a relationship with broccoli. Other than that, no vegetables. None. None. We're not talking about... Again, we're talking about what actually fits in the category of being a true vegetable. In fact, my distaste for vegetables was so strong that, literally, into adulthood, I had never eaten a salad in my life. I didn't eat a salad until I was 25 years old. It was the very first time that I ate a salad.

Now, today, how do you get from there to being one of the top health authors in the world, one of the top health educators in the world? It's because I was so messed up and I really understand, I can relate to what it's like to not have a diversity of foods. To be encouraged. Not just having accessibility but encouraged to eat processed fake foods every single meal because of the environment. Not because of my grandmother. When I moved away from my grandmother, at least I was getting little hints of things but when I moved in with my mother in the inner city and just being immersed in fast food culture now, just being immersed in processed foods every day, everywhere that I go, that became my modus operandi, was eating those type of foods. And so I really identify with this and this idea, answering the question, "Why do some people simply not like vegetables?" Part of it definitely has to do with conditions, alright, let's be clear, especially in our culture but occasionally, this is what we're going to talk about now, demystifying this, they might be someone who's in the category of people known as a supertaster.

A supertaster is someone who experiences the sense of taste with far greater intensity than the average person. In particular, some studies demonstrate an increased sensitivity to bitter tastes I.e., vegetables for supertasters. It's believed to be due to a genetic predisposition how supertasters end up with their supertastes. Some people actually have more taste buds and receptors on their tongue with this genetic predisposition. Our taste buds, also known as fungiform papillae are small mushroom-shaped bumps, thus the name fungiform, that are covered with taste receptors that bind to the molecules from your food and help tell your brain

what you're eating. Really, really cool stuff. Now, supertasters appear to be more sensitive to flavors because of their extra budded tongues. By the way, there are five identified categories of flavor. Alright. This is just what we know. There's five categories, sweet, salty, sour, bitter and umami. Umami. It's that savory type flavor indication.

Now, supertasters are particularly sensitive, again, to bitter flavors in foods such as green vegetables, which was my kryptonite. Why is kryptonite green? Matter of fact, shoutout to DC Comics and the Snyder Cut... Did you see the Snyder Cut yet? Four-hour movie. Much better than the original. Let's just be honest. And also, it didn't seem like it was four hours. It definitely seemed like a long movie but four hours, unprecedented. Incredible story, Zack Snyder, look into it, what happened with him. Originally filming the movie and somebody else taking over and him coming back for the Snyder Cut. But kryptonite's green. Somebody didn't like vegetables who was writing DC Comics. Alright.

Now, again, there are five categories, well-noted, and supertasters are particularly sensitive to bitter flavors and foods such as green vegetables, coffee. A supertaster... No, coffee is not one of their... It's one of those moments like it will repel you, that first sip of coffee, but supertasters doesn't mean they won't drink coffee. It's going to probably have a lot of stuff in it. Alright. They've got a little coffee sprinkled in with a lot of cream and sugar or whatever they put into those frappuccinos out there on the streets, alright, unicorn frappuccinos. Also, even dark chocolate, for example. Forget about it. They want their chocolate on the lighter side. They want it Beyonce complexion. Alright. That's where supertasters are going to want their chocolate. Not the darker chocolate, which has the more benefits, no disrespect to Beyonce, alright, but for the supertasters, the bitter, not the so better.

According to a report from the NIH, approximately 25% of people are supertasters while 50% of people are "Normal tasters" and the remaining 25% of people are at the other end of the spectrum whose sense of taste isn't very strong and they're labeled as "Non-tasters." I think that's a bit dramatic to say you're a non-taster. You have no taste, you have no taste. I'm not going to just completely agree with that labeling. And any of these things, as you're going to see, have some wiggle room. Alright. Wiggle, wiggle.

Now, we truly do experience the world in different ways and this is the big thing I'm trying to bring forward. When two people are eating the same food, they're tasting completely different things. It's incredible. It's incredible but it can also gum up and create these experiences where people have their preferences. Some people can't get enough flavor as well. So when we're talking about a non-taster, they're probably going to be looking for more flavor, more things added to something to make it taste intriguing, to make that interaction with the food more pleasurable because they're not tasting things that, definitely, a supertaster would be tasting but even a normal "Normal taster," which what is normal? So some people can't get enough

flavor while some people are just getting slapped in the tongue with flavor. Alright. When you're a supertaster, just smacking your tongue around when people are getting hit with even the tiniest bits of flavor, especially bitter flavors, and then we have everything in between.

Some other little facts about our sense of taste. More than 200,000 people visit a physician for chemosensory problems such as taste disorders every single year and many more taste abnormalities people experience go unreported. Also, many people are surprised to learn that flavors are recognized largely through our sense of smell. That's where the magic is really happening. It's not just on our tongues and our taste buds but also our sense of smell. And this is why, for example, when you get a cold, when you get a little stuffy, your food tastes different 'cause you can't smell it. It's not that your taste buds are misfunctioning or malfunctioning, it's because our sense of smell is not combining and creating the magic that we experience with our taste sensations.

Now, another fun fact is that our taste cells and our smell cells are the only sensory cells that are regularly replaced throughout our lifetime. Our taste cells usually last about just 10 days, so there's a lot of turnover happening in your mouth. Alright. You could take what you want from that statement. Regardless, our sense of taste is not static. This is very important to understand. It still adjusts based on your input. So you've probably heard the term, "Palate change," a palate change. Well, this is actually a real phenomenon. In trying to explain how this happens behind the scenes, researchers at the University of Buffalo published data suggesting that proactively trying more bitter foods changes proteins in saliva that affect how we perceive the taste of food. So supertaster or not, interacting with different foods consistently will change the way your body interacts with them. Several studies have also found simple nutrient deficiencies can change the sensitivity of your taste buds. For example, researchers at St. John University noted that a zinc deficiency can derange our sense of taste.

Other nutrients like vitamin D, vitamin A, B12 and even copper have all been noted to influence our taste sensitivities. These are all things to consider and this is such a big reason why addressing our underlying nutrient needs optimizes so many things about us because food isn't just food, it's information. Food isn't just food, it's information. It literally changes our operating system. It changes how our entire physiology, how every cell in our body interacts with the rest of the world.

And for myself, when I started to actually include more nutrient-dense foods into my life proactively, consciously... When I asked a fundamental question, when I was diagnosed with a so-called incurable arthritic condition on my spine when I was just a kid, I was 20 years old, a degenerative bone condition, where I broke my hip at track practice, for example, my body was just breaking down and I had the audacity to finally ask, "What are my tissues made of? What are my discs in between the vertebrae of my spine, what are they made of? What are my

bones made off?" And once I asked this question, I started to actually dive into the research. Being that I was still in school, in college at the time and having some accessibility and being able to research, I found that what was being marketed to me as necessary for human health wasn't what was actually necessary for human health. There was an array, about a couple of dozen critical nutrients to increasing my bone density. Many of them I had never even heard of. So I started to find out about things like sulfur and silica and how even Omega-3 fatty acids are needed to improve bone density, and I wasn't getting any of this on my drive-through window diet that I was on previously.

So when I started to change my inputs, including more nutrient-dense foods that had the raw materials... You cannot regenerate your body if you don't give your body the raw materials it needs to do the job. Very simple fundamental principle that's not talked about in conventional medicine. It's not talked about in what would be real healthcare, which is giving your body the nutrients that it needs to thrive. And so when I started to do this, when my inputs change, my outputs changed, my thoughts changed, my actions in the world. I just gained a level of clarity. My energy changed. All of these different things changed about me and also, my palate changed because at that time, I went from a processed food, drive-through window diet to eating more whole real foods and sneaking in my vegetable still. But just upgrading so much from that processed food to a whole food-based diet changed so much about me and adding in some specific supplements. But more and more I ask, "Instead of the supplements, where is the whole food form going to come from?" And I kept coming back to these vegetables that I just had this repelling vibe towards.

And so one of the things that I did early on was, "Okay, I'm not eating kale but let me throw this in the juicer, throw it in a smoothie, sneak it in ninja style. Sneak it in there. Slide it in." And as I did that, as I started to find creative ways to get these foods into my body, it started to change me from the inside out. So the first time I juiced some greens, it was like three apples and one celery, and one piece of kale kind of thing. I was like, "Oh, this isn't bad." And just over time, it became less fruit, which that's a lot of sugar by the way back in the day, to not even needing the fruit part in the first place. And so it was changing my palate.

And oh my goodness, when these concentrated green superfood blends came along, please. For me, this is like 15 years ago and some of them that shall remain nameless, they did not taste very good but I was able to add them to smoothies and some of them, I just had to tough it down and figure out but again, it started to change my palate. Today, they make them to taste amazing and they're doing it the right way. Cold-processed some of the greatest, densest superfoods, green superfoods, known to man, like spirulina, for example, with 70% protein by weight. One of the rare nutrients called phycocyanin. One of the rare food sources of phycocyanin, which is like an ancient nutrient, and this is one that's clinically proven to stimulate something called stem cell genesis in the human body. This is the creation of new

stem cells. These were things that were thought to not be possible, especially through having interaction with foods. We're talking about nutrigenomics, nutrigenetics and how food literally changes our genetic expression, changes our ability to do things like making more stem cells.

What do stem cells do? Stem cells do everything. Stem cells become everything you need. You need some more bone tissue? You need stem cells. You need more heart tissue, stem cells. You need more brain tissue, stem cells. Meniscus, stem cells. They become what you need. So just being able to have the spirulina, the chlorella... And this is why I love Organifi so much. Organifi, not only do they have these superfoods but they're cold-processed to retain more of the nutrition, and it tastes good. So then my kids, literally every day, are having Organifi. So my oldest son loves the green juice. He gets it in every day. My youngest son, the red juice formula. The green juice formula with the spirulina, the chlorella, the Ashwagandha, it's an essential. It should definitely be a staple in our cabinet.

So if you're not using Organifi yet... Again, palate change, helping to change the intelligence of the body and these are things that I literally did myself early on and I didn't know that I was doing them that was changing my palate and making me crave and want foods that were better for my body than my drive-through window diet that I was more attracted to prior to really getting this knowledge. So head over to organifi.com/model. That's O-R-G-A-N-I-F-I.com/model. You get 20% off, 20% off their green juice formula, their red juice. The gold with the turmeric, oh my goodness, incredible. Pop over there and check 'em out, organifi.com/model.

Alright. Now listen, even in this vein with the supertaster, the "Normal tasters" and the "Non-tasters," there's so much diversity in how we interact with food.

But I want to move on to something that isn't a taste in a sense, but it's more of a food experience that gives us more of a feeling than anything else. How in the world do spicy foods turn up the heat in our mouth and in our bodies? How is that happening? And I'd imagine, for again I unconsciously thought this, that most folks would think that the "Burn" of spicy foods is a form of taste, but again, it's more of a feeling. In fact, the two sensory experiences are related, so our taste and the feeling experienced, which we'll talk about more, but they're also very distinct. Spicy foods enervate the tongue the same way by interacting with your papillae, but there's an additional pain system that is triggered by compounds in spicy food that are located everywhere throughout the body, not just your tongue. So you can have the experience of this kind of thermal effect everywhere.

Capsaicin is the main active ingredient in spicy food, and it binds to a special class of receptors inside of our mouth called VR1 receptors. Now these are specialized pain receptors that respond to temperature extremes and intense mechanical stimulation, such as pinching and

cutting, and it signals your brain to try to protect you from those things. These receptors also respond to very specific chemical influences, like those from capsaicin, so when we consume capsaicin, our central nervous system can be confused or tricked in a sense when these pain fibers get stimulated, as if something physically hot is touching your mouth, and you need to release the body's internal and external sprinkler system to help to put the fire out.

And as you know, spicy foods can induce sweating, accelerate the heart rate. All kinds of system-wide changes can take place, so in essence, these pain receptors respond when you're drinking something that's too hot, for example, maybe it's a coffee that's like scalding hot, and these pain receptors tell your brain, "Hey, back off." The same thing is happening, it's triggering the same receptors with spicy food, but it can be just enough where it's like, oh, this is a little bit too hot, or maybe too, too hot, or maybe extremely hot and it gets painful, but it's nothing that's actually... Because that pain receptor with something that's physically hot, for example, is trying to make sure that you don't melt your tongue or melt your biology, all the cells in your mouth, but the capsaicin can't actually do this. It's not actually melting anything, but it tricks your receptors into thinking that that's what's happening.

Now, when these pain sensors get triggered, this also stimulates the release of endorphins, these feel good compounds. This is part of the reason that spicy foods can be so attractive. They, in a strange way, make us feel good. Another interesting fact is that not only do different people have extremely different tastes and experiences as far as feelings associated with food, but different animals sense flavors and stimulation from food differently as well. For example, it appears that birds don't register the effects of capsaicin like mammals do. Birds can peck on the hottest of hot peppers and not be bothered. It's as if they evolved alongside some kind of a partnership with hot peppers, so that the birds, because they're flying to different places, dropping off those leftovers from the peppers, dropping off those seeds, and they created a little bit of a partnership, because it's tricking your brain into thinking that it's physically hurting you, but it's not, but for birds, they don't seem to be bothered. Now again, birds can have the hottest of the hottest peppers.

I remember I was at this restaurant and I was with some weird get along gang type of eclectic... I didn't know how I ended up there, alright and we had the meal, then at the end of the meal, they brought this this little plate and it had this drop of fluid right in the middle of the plate, like a little sauce, like a little dark burgundy sauce and a bunch of toothpicks, and I'm just like, "What is this?" This is already weird enough. The whole vibe of the thing is weird enough. I was traveling there from St. Louis to LA, funny enough, and this was probably, I don't know, maybe 10 years ago, and so, so much stuff was new to me. And so people would start picking up the toothpick, people who were affiliated with this experience, and dipped it into the little dollop of sauce. It was tiny. It was like the size of a... Smaller than a dime. Dipped it into the sauce and then put it on their tongue, and I'm like, "I guess when in Rome, I guess." And so I did it, and

then I put the dollop on my tongue, and it felt as if I was getting a full body tattoo, once that stuff hit my tongue. I come to find out it was some crazy exclusive ghost pepper or some other kind... I don't even remember the name. What's beyond a ghost? It was a freaking... I don't know... Vampire pepper. Alright. It was like a whole different level, and I was like, "How is this thing touching my tongue making me feel stimulation on my skin, like on my arms?"

And so again, for us, we're getting this kind of interaction, and while a bird can consume, like literally just straight up eat one of those peppers that just a little teeny bit of the fluid from it affected my body. So just keep that in mind. Little fun fact. But how does this actually play out? Now, we're not talking about stuff that is physically causing trauma to your body, we're not talking about that. We're talking about a little bit of spice, just keep it a little spicy. What kind of benefits can we extract from this unique compound? Well, the study published in the peer-reviewed journal Nutrients found that capsaicin supplementation actually improved risk factors for coronary heart disease. Protection against heart disease. Alright. That's really interesting that it has that kind of capacity.

Well, there's another study that was published in 2016 where scientists concluded that capsaicin is actually able to increase the body's ratio of brown adipose tissue. It could actually help to nudge beige fat cells that can either become white adipose tissue, which is storage body fat into being brown adipose tissue. So this is a type of body fat that burns fat, and again, we talked about these in-depth on that episode, detailing how metabolism works. So make sure to check out that episode after this one. But the bottom line is hot food, spicy food actually has this, not just this thermogenic effect where it's kind of increasing our metabolism temporarily, but literally shifting the ratio of body fat. So we got storage fats, we've got structural fats and we've got fats that actually burn fat for fuel. So it's really, really cool stuff. Now, additionally, several studies have also noted capsaicin's incredible ability to help with pain relief.

A study from the Harvard School of Public Health found that people who eat spicy foods daily have about a 14% lower risk of death from all causes than people who eat spicy foods once a week. Now, the researchers analyzed the health and nutrition data from nearly half a million people in this particular study and found this interesting correlation after accounting for several other influential factors, spicy food stood out somehow. Now again, this isn't necessarily causation, but it's an interesting data point nonetheless. So spicy food is tied to improvements potentially with our body fat ratio, cardiovascular health, relieving pain, increasing endorphins, and also potentially adding to that recipe of extending our lifespan. Pretty cool stuff. So spicy foods, you can spice up just about anything, you could spice up adding peppers and obviously it's something that's dried and used like cayenne pepper for example, for savory dishes, even combining it with sweet foods. Having a little bit of cinnamon

along with some chocolate and cinnamon for example is actually something that's been utilized for quite some time.

So we can think outside the box and utilize peppers, spicy peppers, cayenne pepper, and even whole peppers in different ways. Alright, so again, from spicy to sweet savory dishes and just adding it in. If it feels good add it in, a little spice, a little spice can go a long way. Now, next up in our adventure into the strange relationship that certain foods have on our bodies is another common one that many people experience. Have you ever been snacking on some fresh pineapple and experienced a weird sting in your mouth? Maybe even a little bit of a pins and needles sensation, or maybe even some weird numbness. Well, pineapple has a unique enzyme called bromelain, that has a remarkable ability to break down protein, and the structures of your mouth are made of protein. Your body truly is made from protein.

This is "the building blocks that make up our physical structure," and so in your mouth, bromelain has the ability to digest protein and break down protein. So in essence, when you're eating that pineapple, it's trying to eat you back. So when we're having this situation, this hit me and I'll hit you back situation taking place with pineapple, this is happening in our mouth, and so the question for me came up, "Well, what about the rest of my body? What about the downstream effects with the pineapple since it's digesting protein?" But once it hits your stomach, your stomach acids and other compounds actually render bromelain harmless, and in fact, it helps it to become a potent anti-inflammatory nutrient in our bodies, according to data cited in the journal, Clinical Immunology. Now, you might be wondering why a journal dedicated to immunology is investigating this pineapple compound in the first place.

Well, another study published in the journal, Cellular Immunology, found that bromelain can actually act as an immuno-modulator in the body helping the immune system to increase or decrease itself based on an upper level intelligence, a modulation, instead of just this one lane, like what happens with synthetic drugs, for example, it pushes your immune system in one direction. It either increases the immune system performance or it suppresses the immune system. Foods like pineapple, like bromelain, appear to have an immuno-modulating capacity where it helps your immune system to modulate and to go up if it needs to or even go down if it needs to. And when we're talking about why would I need to go down? What if we're having an excessive immune response or an autoimmune reaction? There can be some potential here, and this is what they're studying with bromelain being able to help the immune system to reach a state of homeostasis and balance and improvement overall.

Now, there are many other benefits that are seen with pineapples in the data. Another one, this is conducted by researchers at the University of South Hampton in the UK, found that bromelain can be an effective treatment for osteoarthritis. Pretty cool. And also, again, just overall, pineapple is very high in vitamin C and antioxidants, and this may lean into why it's

helpful for the immune system somehow, but more research is being done. Food has these really interesting capacities. So pineapple is one that's pretty easy to utilize, it might be with your favorite yogurt, for example, dairy or non-dairy versions, it might be something that you're adding in, a fruit, a fruit mix, a fruit cocktail.

Let me be 100, I used to hate pineapple, because it would come in a little fruit cocktail that you get at school, and it always... It was not yellow. It was translucent white. It was just... What is that? And just threw the whole vibe out. If I was trying to eat the peach, they had the peaches, the grapes in there, and the pineapple just was suspicious to me. But that's not real pineapple, alright fresh pineapple. And so there are many different ways to add it in, "fruit salad" or just eating some, snacking on it just alone, adding it to different dishes. Again, I mentioned that it's something that breaks down protein, so it's been used historically for tendering meat, for example. So you might think of the luau. Shoutout to everybody listening in Hawaii right now. And it being utilized that way, and also there are some weirdos out there putting pineapple on pizza, but you didn't hear that from me. Shoutout to everybody who likes pineapple on pizza. It might be me. I might be one of those weirdos. Probably not, but there's definitely somebody in my household who's a fan of pineapple on pizza. I'm not saying it's me, but it might be.

Alright, so pineapple is another one of those foods that has a very strange interaction with our body, but it also has some really remarkable benefits once we dive into the data. Now our final strange interaction with foods and the human body seeks to answer the question, how are processed foods able to taste like things that they're not? So for example, there's not actually any grapes in the grape soda, and there's not actually any chicken in the tofu chicken nuggets. How are we able to make things taste like things that they're not? Now, when it comes to grape soda, for example. I'm saying grape soda because that was my vibe. That Vess grape soda, from I'm from, it's a hood classic. Alright, so having that as something that I would go to quite often, the grape, the fruit punch, the strawberry soda, but the grape in particular has a little bit of a vibe, an essence of grape to it, but there's 0% grape juice in the grape soda. How are we able to do that? And by the way, it doesn't have to be perfect. The flavor notes don't have to match up perfectly to muddy up the waters in how foods are communicating with your brain.

So how are they able to do this? There's something called a gas chromatograph that's able to now we've been able to isolate flavors, isolate chemicals that denote flavors in foods. So food scientists have been able to use technology to isolate specific chemicals in foods and then put those chemicals into other things to make those things taste like things that they're not, alright. So making a chip taste like... There's the chicken and waffles flavored potato chip. All these different crazy things that we're able to do, and again, this doesn't have to be perfect like the strawberry candy, the strawberry beverage doesn't have to taste exactly like a strawberry, but it's just enough to muddy up those waters of communication between the food stuff and your brain.

Now, what do I mean by this? Well, we evolved eating food and having a very specific relationship to the flavors and nutrients in foods. And there's this phenomenon called post-ingestive feedback, post-ingestive feedback. This is through, through our evolution, when we would consume a food, just say we consume a wild strawberry. When you would eat that wild strawberry, when our ancestors ate that wild strawberry, brought it into our system, this highly evolved intelligent system, your physiology, your brain, and the mind and all of your cells is literally just kind of pulling out its own metaphorical notepad and writing notes that when I just ate this food and had this flavor, this strawberry flavor, a wild strawberry flavor, I got some vitamin C, I got some copper, I got these particular amino acids, and it's just literally taking notes, taking stored biological memory of what it got when I got this flavor. So there's a post-ingestive feedback, once we ingested the food, we get this feedback that these are the nutrients that come along with that flavor. And so whenever our bodies would become deficient in those nutrients, our physiology, our brain, our body, every cell in body, we knew where to get that nutrient, where to get those nutrients, because we would evoke a hunger or a craving for those foods.

This is how cravings evolved. Cravings aren't a bad thing. This would dictate and determine and assist and support our food choices. But this highly evolved system has been manipulated by the food industry to make us crave all of these crazy things that have never existed before, and has again, muddied up the water of this post-ingestive feedback, because now we have things that tastes like other things. And so there's another phenomenon called vanishing caloric density that's utilized by food scientists to manipulate our brains, because any strong flavor sensation, anything that really overwhelms your taste buds, we have a natural mechanism in our brains that trigger us to stop to the joy that we might be getting by having this food, to turn the pleasure off and start to make it not palatable. So maybe it's that pineapple that we talked about earlier. There's only so much pineapple, and that again, the pineapples have been kind of manipulated over time as well to be sweeter and all that stuff, but there would be a shut-off mechanism in our brain is like, "Okay, that's enough sugar, it's enough of these nutrients." And also, of course, the pineapple is going to start hurting you after a while anyway, so these are all in the natural rhythm of things.

But with this vanishing caloric density, food scientists have found a way to make, for example, a Cheeto. To make a Cheeto, which is an incredibly potent flavor sensation, to only trigger stimulation of a certain category of brain cells, just enough to tickle them just enough, then adding in some other notes over here and creating this perfect combination where you can keep eating it and eating it, and eating it and not really even realizing that you've done two or three whole bag of these things. You might have consumed hundreds of calories but your brain is essentially tricked into thinking that it hasn't gotten many calories at all because it's another... Post-ingestive feedback is the amount of energy that's coming in from the food. And

so your brain is even getting tricked to like, "Oh, this is just air. Just chewing on some air. Keep eating."

So this is just another one of those ways that our interactions with food often go on behind the scenes. Why are we doing the thing that we're doing? Why do we have this relationship with these particular categories of foods that we call processed foods? What's happening there? What's happening behind the scenes? And these are one of the things that we really need to address as a culture to help to move away from these things to restore optimal function, to restore that true post-ingestive feedback in our powerful relationship with food and what our bodies really need because the reality is we've been manipulated. These food manufacturers have been manipulating our systems and creating a situation where our systems and our biology, and the release of these different feel-good chemicals and dopamine has really run amok.

We didn't land on Cheetos, Cheetos landed on us. So if you saw this, you see I did the Denzel Washington finger, if you saw that, but it's true. These things have really taken over our culture, and how do we fix it? This is so simple, it's simple. But it's not necessarily easy because, again, it's immersed itself, it's really entangled itself into our culture. But a simple return to a healthy, "normal palette", normal interaction with real food takes place when we remove the abnormal foods. It's literally that simple. Healing starts to take place, intelligence starts to reign supreme again, when we remove the cause of the dysfunction. But does this mean that we don't get to eat the most delicious foods we've ever had? No, this doesn't mean that. This doesn't exclude you from joy and pleasure. Matter of fact, it's opening the door. There are thousands of foods that you haven't even tried yet, real whole foods, and the cool thing is that the best meal of your life is still to come, and that's so inspiring.

And so getting this type of information, getting inspired, adding in some new things here or there and also, again, let's remove the cause, move away from those things. Not to say that we can't even have them. I'm not somebody... I'm definitely not in camp like nothing never... But I do... I'm very much aware of the... It's not just having that experience, it's the downstream effects that can take place. And so really shifting, and what we talk about in Eat Smarter, is having this 80-20 principle and really focusing on 80% of our foods coming from real whole foods, whole unprocessed foods, and then changing and dressing these foods up and creating incredible meals out of them, sexy food, sexy time food. Not like the Colt 45, not like the Billy Dee Williams trick. He's, "Yeah, it works every time." He's pretending that this is going to be a healthy affair but it's really just some cheap malt liquor. Billy, you know you're not drinking that stuff but shout out to Billy Dee Williams. But this is a true invitation into health and wellness.

So being able to take advantage of the incredible foods that we have access to and also just being a little bit more proactive at avoiding the things that really do have this very strange twisted way that they interact with our cells and even with talking about nutrigenomics and nutrigenetics and how they're affecting our genetic expression. This isn't a small thing but at the end of the day, even those processed food goodies, we can upgrade the quality of those things. We can use better ingredients for those things. It just keeps getting better and better.

So taking everybody through the process of how metabolism actually works, all the incredible foods and nutrients involved in that process, how different foods impact and control your cognitive performance, your ability to, literally, make memories is determined by the food that you eat because your brain cells are made from food. We talk about all the latest clinical evidence, peer-reviewed, even double-blind, placebo-controlled studies, finding how specific nutrients can improve your explicit memory, can improve your ability to focus under stress. All of those things are in Eat Smarter. And also, a masterclass on how specific foods control our sleep quality and also how foods impact our relationships, how food controls our ability to perspective take, how food controls our ability to put ourselves in someone else's shoes and have empathy, this is all seen in the data, and food can really make things a whole lot better. It can bring people together, literally. It's a unifier, and so we're just going to upgrade the way that we do it and eat smarter.

And I hope that you got a lot of value out of this episode. If you did, please share it out with your friends and family on social media. You could tag me, I'm @shawnmodel on Instagram and Twitter and at The Model Health Show on Facebook. And of course, you could pick up Eat Smarter anywhere books are sold. And I appreciate you so much. We've got some powerhouse episodes coming your way very soon, some amazing guests and amazing masterclass episodes coming up, so make sure to stay tuned. Take care, have an amazing day and I'll talk with you soon.

And for more after the show, make sure to head over to themodelhealthshow.com. That's where you can find all of the show notes, you could find transcriptions, videos for each episode, and if you got a comment, you can leave me a comment there as well. And please make sure to head over to iTunes and leave us a rating to let everybody know that the show is awesome and I appreciate that so much and take care. I promise to keep giving you more powerful, empowering, great content to help you transform your life. Thanks for tuning in.