THE MODEL HEALTH SHOW

EPISODE 657

# How Alcohol Influences Metabolism and Longevity

**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 doing a deep dive into the metabolic impact of alcohol. And also, with me looking at some of the psychoactive effects and some potential benefits with alcohol as well. We're going to be really looking through the lens of science and peer-reviewed data and we've got a lot to dig into. I'm going to start with first and foremost, we have to understand that we've been consuming alcohol for a very long time as a species. The discovery of alcohol and its intoxicating effects was likely an accident that was experienced by early human ancestors who were gobbling down excessively ripe fruit. And obviously the fruit sugars are then going to be dined on by yeasts and the metabolic by-products by yeast dining on that sugar is something called ethanol, i.e. What we refer to today as alcohol. Now the question is, is this ethanol, is alcohol the poop and pee of the yeast? Well, yes, it is.

Essentially that's what it is. It's a byproduct, it's a waste product in that process. Now the earliest documented use of intentionally created alcoholic drinks dates back to 7000 BC in China. But just because the intentional creation of alcoholic beverages began around then, it doesn't mean that humans were not consuming and utilizing alcohol long before that time. In fact, a report published in Proceedings of the National Academy of Sciences determined that our human ancestors developed the capacity to digest and utilize alcohol in metabolic processes approximately 10 million years ago. Alcohol is in fact a macronutrient that can be used as caloric fuel to drive processes in our bodies.

We often think... When I was in my university courses for example, I was taught that there are three major macronutrients. We've got fats, we've got carbohydrates, and we've got proteins. But alcohol is also a macronutrient. It is a caloric potential to be able to drive processes in the body. In fact, each gram of protein contains four calories, each gram of carbohydrate contains four calories, each gram of fat contains nine calories, and that's what most folks are taught about in school and conventional nutritional conversations. But right there somewhere in the middle we've got alcohol sitting at seven calories per gram of alcohol. Now being that alcohol was being generated from the sugars of a vast array of foods for our human ancestors and, again, they were eating these various foods for millions of years, it's natural that ethanol byproducts would have been stowing along with various foods depending upon their ripeness.

Now researchers have stated that the ability to break down alcohol likely helped human ancestors to make the most out of rotting fermented fruit that fell onto the jungle floor or the forest floor. Now moving back to the intentional creation of alcoholic beverages and concentrates just a few thousand years ago, reports indicate that it was not solely for the

intoxicating benefits. But alcohol has been used as a means to make water safe to drink, to preserve foods and herbs, and to extract medicines from a variety of botanical sources. However, today, alcohol is largely used for its psychoactive and mood-altering effects. Thus, various cultures in recent documented human history strive to increase the alcohol content that they can actually get from the alcoholic beverage.

A report that was cited in the peer-reviewed journal Nature, the researcher stated, "Most yeast strains can tolerate an alcohol concentration of about 10 to 15 percent before being killed themselves." This is why the percentage of alcohol in wines and beers is under 15%. So, the question is, for humans earlier on, a few thousand years ago, how do we get higher ratios of alcohol into this liquor? And in steps the process of distillation. By boiling fermented liquids to vaporize the alcohol in them. Since alcohol boils at a lower temperature than water does and vaporizes first, that vaporized alcohol can then be captured and then cooled down and this is creating alcoholic beverages, through this process of distillation, that are often referred to as "spirits."

Now in this investigation and compiling all this data today, I was really fascinated by this word "spirits". Like where did it come from, how was this attributed to alcohol? And funny enough, there are many theories on where this originated. One of them was tied to a derivative of a word where alcohol was actually pulled from in the term "Algol" Algol which historians tie to the Arabic language. Algol is referenced in the Quran verse 3747 referring to a demon or spirit that produces intoxication. Fascinating stuff, right? But that's just one theory of where it came from. Other connections link the word spirit to things ranging from makeup like literally makeup that you put on to spirited strange behavior. There's a lot of theories on where it came from, but the truth is nobody really knows. Now like highly concentrated sources of extracted sugar, highly concentrated extracts in the form of ethanol and spirits have not been around that long in the grand picture of human evolution. Yes, naturally occurring sugar has been around a long time and naturally occurring alcohol has been around a very long time. Again, we're talking millions of years. But buying them in concentrates by the bag and by the bottle is still a recent thing in the human story.

Now, yes, alcohol has been used to make water safe to drink, it's been used in medicine, in preservation of food and water, but again today alcohol is largely used for its psychoactive and mood-altering effects. So now we're going to take a look at what we know today about the biological impacts of alcohol on the human body. First let's talk a little bit about how it's absorbed and what it does biochemically. When alcohol is consumed, it enters the stomach where it can be absorbed into the bloodstream. However, if no food is present, it's a little interesting fact. Because most people if they've drank alcohol before an empty stomach, they know that they tend to get more tipsy faster, and this is because if no food is present, most of

the alcohol moves down into the small intestine quickly where there's a much larger surface area for absorption versus what's happening in the stomach.

In fact, if someone drinks alcohol along with food in their stomach, the pyloric sphincter separating the stomach from the small intestine actually is closed, allowing the food to be digested in the stomach, and since the alcohol can't move into the small intestine immediately, this slows down the absorption of alcohol into the bloodstream by considerable amount. And according to researchers at Duke University, a meal with a notable amount of dietary fat can reduce the peak blood alcohol concentration that people experience up to 50% relative to that produced when alcohol is consumed on an empty stomach. So, 50% reduced peak blood alcohol concentration by having alcohol along with some dietary fat in the meal. Really interesting stuff. Now alcohol travels through our intestinal lumen which they've got these little finger-like vibes going on to pull in that alcohol and then it goes through our epithelial cells and enters our bloodstream. And now being in our bloodstream, it can essentially be distributed throughout our entire system and, most notably, to our brain and to our nervous system.

Researchers at Harvard University state that alcohol works by depressing the central nervous system. It acts like a sedative or tranquilizer slowing your motor coordination and reaction time. It also depresses cognitive function, altering judgment, memory, reasoning, and self-control. But these are some things we kind of superficially know as a culture. What we want to talk about today is going beyond the cultural awareness of the altered state that alcohol can provide and let's take a look at the plethora of new science that we have detailing how alcohol impacts our metabolic health. Now alcohol has a very unique impact on our metabolism. In fact, when alcohol enters our body, it immediately takes precedence over every other energy source and gets burned first. This is because unlike protein, carbs, and fat, alcohol cannot be stored in our bodies. When it comes in, it has to get used. That's one aspect. And also, alcohol is a calorically dense compound that can provide large amounts of bioavailable energy. And again, is usually in liquid form so the body can immediately grab that and start to run processes with it.

Now earlier we noted how for every gram of protein you're getting four calories, every gram of carbs you're getting four calories, every gram of fat you're getting nine calories, and, again, with alcohol you're getting seven calories per gram. Now the shining difference here is that it's in liquid form, very quickly metabolized, hitting our system very quickly without any other accompanying nutrients that can benefit our metabolism. Like for example, something that might be in a liquid form being omega-3 rich oils, right? So beneficial to the system and it could be a variety of different types of omega-3s. Alcohol is hitting our system different, and this is why alcohol consumption is widely regarded as "empty calories." But again, these calories don't get stored. So how in the world can we get our sip on without causing drama for our

metabolism? Part one is how it stops the burning of stored body fat and part two is how it affects other systems involved in our metabolism. But we're going to do our best to look at this from a rational well-balanced perspective because, again, alcohol is something that's been utilized by human civilizations for thousands of years.

So, it can't be all bad, right? Well, if you actually look openly at the data, you see some pretty interesting things manifest. A study that was published in the Journal of the American College of Cardiology analyzed the data of over 330,000 participants for eight years and found that light to moderate drinkers, approximately two or less drinks per day for men and one drink per day for women, were about 20% less likely to die from any cause during the study period compared to non-drinkers. This is fascinating. Now here's the rub. The study did note that several other lifestyle factors were not taken into account. Alright? So other confounding factors, right? So, exercise, diet, sleep habits, stress, some of these factors they might have pulled in a few but jumping out in the researchers' analysis, again, if they're looking for something, they're going to find something, they found this interesting factor with alcohol.

Now what was really eye-opening, however, about the study was that the researchers noted that there was, on the other side, a drastic increase in the risk of death from all causes in people who are heavy drinkers. Now these were folks who were having on average three drinks per day for men, two or more for women. The study author stated, "A balance between beneficial and detrimental effects of alcohol consumption on health should be considered when making individual or population-wide recommendations." They added, "But the reduction of harmful or high consumption of alcohol remains necessary and essential." So, alcohol consumption appears to be a little bit like the movie A Thin Line Between Love and Hate. There's a thin line here. And ironically the fatal attraction character in the movie who was chasing after Martin Lawrence's character, her name was reminiscent of a form of alcohol. Her name was Brandi.

Now, what about the impact that alcohol has on weight and body fat itself? First off, a meta-analysis published in the journal Current Obesity Reports deduce that many studies show light to moderate alcohol intake, again, at most two drinks a day for men, one drink a day for women, does not seem to be associated with obesity risk in a short-term follow-up period. Heavy drinking, on the other hand, was clearly linked to an increased risk of obesity and the accumulation of more visceral fat, more belly fat. But even light to moderate drinking, long term, raised some serious concerns. Since alcohol is quickly burned as fuel, it takes a sneaky route to influencing our weight and body fat. The researchers found that frequent alcohol consumption could lead to something referred to as "fat sparing" where fatty acid oxidation is suppressed, again, when we consume alcohol, our bodies are not equipped to store the alcohol so it's going to immediately stop using other sources including it's going to stop immediately any burning of your stored body fat to start using that alcohol. Thus, again this phenomenon referred to as fat sparing.

Another thing this meta-analysis noted which was highlighted in the journal Clinical Endocrinology was that even a moderate intake of alcohol can have an inhibitory effect on our body's major satiety hormone leptin. Now this manifests with several studies showing how folks tend to eat more and make poorer food choices when they're drinking. A joint study from the USDA and the NIH determined that increased alcohol consumption is directly associated with an increased consumption of unhealthy foods. No sh*t. This is something we know experientially but we use peer-reviewed data and prestigious medical authorities to affirm what we already know. We see this pattern happen. The beautiful part about this is that there is a science behind it. There's a reason behind it. We know that we do these things but what this brings about is an opportunity to see like what's happening internally, like what's happening with my psychology, what's happening with my biochemistry that drives me to go for the Cheetos when I'm drinking a little bit? Or that drives me up to the drive-through window when I'm drinking a little bit, when normally I wouldn't take an action like that?

And part of it is the impact that it has on our psychology, being this psychoactive substance which we'll talk about in a moment, but another part is that it disrupts this communication with our hunger and satiety hormones. And so again, it's not about our willpower. Because we might be stacking conditions against us that make us do these behaviors and make these behaviors very, very difficult to not engage in. We're talking about pulling up to the 24-hour McDonald's. Now, by the way, the fact that there's 24-hour McDonald's, it's crazy. This wasn't a thing when I was a kid, right? Today just about any time you could find terrible food readily available. Whereas getting high quality food, that's generally a day walking vibe for a lot of people. Now when it comes to fat loss, it's not that alcohol is off limits, but it's really important for us to be reminded that it's one of the most powerful psychoactive drugs in the world, if not the most powerful.

And we often don't put it consciously in that category of being a psychoactive drug because, A, it's something that you can purchase without a prescription from a doctor or purchase from a dealer, and also, B, it's socially acceptable to consume it in public. What other drugs, psychoactive drugs, can we take publicly without judgment or without criminal consequences? If you think about it. And similarly, what about the accessibility of a psychoactive substance? Very, very strong psychoactive substance that's responsible for close to a hundred thousand deaths in the United States annually, by the way. You don't need permission from a doctor. You don't need a prescription. You don't need to go to a dealer for it. You can literally just stumble into a quick trip or a liquor store or just about anywhere. So many of our societal engagement's alcohol is readily available, but it's not the same, even for cigarettes has been pulled away so much from society. So, things have changed, the landscape has changed, and this is the socially acceptable psychoactive substance that it's just become normalized in our culture. And this leads to the next point. The form of alcohol you're drinking matters. Just like

other macronutrients, how it's prepared and how it's served can make a world of difference for our waistline.

Let's just be honest here. Alright? Time for honest conversation. Look face-to-face heart-to-heart. A lot of the alcoholic beverages that are including added sugars from sodas and juices. This is really just a dog Kool-Aid. Alright? This is heart-to-heart. We're having a heart-to-heart here. Alright that's really what it is. Combining alcohol and sugar is a sure-fire way to negatively impact our metabolism and we know this but the sex on the beach. Alright? That's a drink not the activity it is family-friendly, alright? But going for those types of beverages as a means to try to get that alcohol into our system can sure fire away to negatively impact our metabolism. So does this mean that we can't have the sex on the beach, again, the drink not the activity but you could do both. Okay? Alright? But we've got to be honest about this engagement and how it's impacting our metabolism and how does it align with our goals? And just to be mindful because this is about informed consent knowing that this is what's going on and combining, again, sugar and alcohol very, very detrimental to our metabolism even in short acute instances.

So, again, keep in mind there's a thin line here between a little bit of metabolic impact and devastation to our metabolic health and also our health overall. And so, keep in mind for many of us, we don't have much wiggle room when it comes to alcohol. It's going to depend from person to person as well how our body is going to be able to interact based on our genetics, our gender. I mentioned these various population studies looking at men versus women and how the alcohol intake is different and how much you can "get away with". So, genetics, gender, our age impacts how alcohol is going to affect us. Our microbiome, our current body fat levels right now and several other factors that make up your unique metabolic fingerprint. It's going to be different from person to person. And this is an opportunity for us to be aware that this might be the thing that could be holding us back from the results that we're trying to get and/or is there an appropriate way for us to engage with this thing in a healthful manner moving forward?

Alright? So now looking at this impact on metabolism again. Another example. This study was from the University of Pennsylvania School of Nursing, and they found that people who are already overweight and consuming alcohol had a much more difficult time losing weight than those who are non-drinkers. The study also noted that people tend to underestimate their drinking which... This is another important thing that might set off a light bulb for you because there's not going to be a nutrition label coming along when you're out getting drinks here or there. You really have no idea what you're actually getting or what you're signing up for. And when it comes to alcohol, again, it's a very thin line for our metabolic health. And just to reiterate this point, folks who are already overweight trying to lose weight had a more difficult time losing weight if they were drinkers versus being a non-drinker. Another study published

in 2019 found that alcohol can disrupt your metabolism by causing disruption to your sex hormones.

The study cited in the Journal of Clinical Medicine affirm that excessive alcohol consumption does in fact decrease levels of testosterone in men and it also increases aromatization of testosterone which in turn leads to higher levels of estrogen. Aromatization is this process where testosterone is essentially stolen and converted into estrogen. Our testosterone... One of the things that increases aromatization is enzymatic process is insulin resistance, so carrying excessive body fat, but also alcohol can make this process turn on of increasing aromatization. Stealing our testosterone, not just stealing it but converting it into more estrogen. This is one of the things, again, culturally we see folks that are consistent drinkers for many years, you start to see the development of the "beer belly" but also the increased production of more breast tissue even in men. We see this transformation take place over time for people who consistently drink alcohol. And it's a societal thing we see it, but we don't necessarily acknowledge what's going on behind the scenes in making this process happen? Decreased testosterone, increased aromatization thus increased estrogen production.

Now many of the touted benefits of alcohol comes from the world of red wine. It's where you'll find the antioxidant resveratrol which is attributed to longevity. But the amount of resveratrol you're actually getting from a glass of wine or two is so negligible. You're going to need to consume bottles on bottle. You're going to need to consume a whole lot of wine to get an actual therapeutic amount of resveratrol. If you want the resveratrol, if that's what you're actually drinking the wine for, you're better off getting a concentrated supplement. The red wine... But here's the thing. Most people are not drinking red wine for the resveratrol, they're not drinking red wine for the health benefits. Alright? Yes, red wine does have some interesting potentials here, but let's not toss it into the category of being a health food. Whether it's wine or other alcoholic beverages, I just encourage you to, number one, seek out better quality if you're engaging with these things. So, companies that are doing things with the highest possible integrity and doing toxin screenings and monitoring for heavy metals and allergens and all this stuff which there are very, very few companies out there that are going to do anything like that. And also, to be mindful of how much you're drinking 'cause that's one of the things noted again in the data.

We tend to underestimate that and also paying attention to how often. Now if you're not seeing the results that you want and you've been manipulating calories and exercising and all the things and you regularly consume alcohol, this might be the thing that could be impacting you and stifling your results. And so, I just wanted to provide you with this education because, again, it's going to depend on you but this could be the thing and likely is for a significant percentage of our population. Now if you're wondering another reason why this could be. We're going to get even deeper here, and this could be the impact that it's having on our

microbiome. A study cited in the American Journal of Physiology found that microbiome dysbiosis is significantly more prevalent in heavy alcohol drinkers. The researchers discovered that heavy alcohol drinkers have substantially lower levels of metabolism supportive bacteroides and much higher levels of pathogenic bacteria. The scientists stated that, "Alcohol use is correlated with decreased connectivity of the microbial network." And this alteration is seen even after an extended period of sobriety. So, drinking alcohol has long tail effects with damaging our microbiome. Again, this is just taking a meta-perspective and looking at this objectively. This is what's going on it creates the shift in our microbiome.

Now, a small exception to this may, again, be found in red wine. Research published in the American Journal of Clinical Nutrition showed that study participants who were drinking about one and a half glasses of red wine a day for 20 days actually increased their ratio of friendly bacteria and lowered their levels of pathogenic bacteria. Now, before anyone runs out and tries to pop some bottles with models, I want you to, again, reiterate. I want to reiterate the point there's a slippery slope here with these potential damages or a narrow window here of benefit versus the potential for significant metabolic dysfunction. Alright? And don't do this under the guise of I'm drinking this red wine to improve the health of my gut, alright? Because, again, narrow window of benefits. But I want to make sure you have that information nonetheless. And, again, so many of these factors are going to depend on your unique metabolic fingerprint and how your body is going to be able to handle interactions with alcohol. So truly it's going to depend on you. And also, we want to air on the side of caution with this one in a major way. And it's because even expanding beyond the metabolic impact, and that's what we're talking about here at this moment, there's so much more as far as very, very strong peer-reviewed data that we have in its impact, in alcohol's impact on our health overall as a species.

So next up I want to look at some data and this is from the National Cancer Institute. They say, "There is a strong scientific consensus that alcohol drinking can cause several types of cancer." A study cited in the journal Nutrients titled Alcohol and Cancer: Epidemiology and Biological Mechanisms details more on the specific types of cancer that alcohol is implicated in. And the researcher state that nearly 5% of all cancers are caused by alcohol. It's not correlated with. It's not associated with. It is causative about 5% of all cancers. This is something most people have never heard before. They're definitely not thinking about it. About 5% of all cancer cases are caused by alcohol. The researchers indicated specific cancers that are heavily influenced by alcohol consumption. And they include various head, neck and throat cancers, oral cavity cancers, liver cancer, breast cancer, and colon and rectal cancers. The study went on to really detail that the metabolites of ethanol. So, it's not just that the ethanol itself, it's the metabolic breakdown products, it's the metabolic waste that happen through that interaction with our cells, metabolites of ethanol can cause DNA damage and they can actually block DNA synthesis and repair.

So, we're talking about damaging your DNA and blocking the ability of your DNA to repair itself. Dead giveaway, that's a huge problem. Also extending with both ethanol and its metabolites can disrupt DNA methylation. So, we're getting these dirty chains according to our friend Dr. Ben Lynch, and we'll put his episode for you in the show notes. But DNA methylation is critical to our health and longevity and the ability for our bodies to appropriately respond to insults, to appropriately respond to any kind of cellular problems. So just basic function. We need to be able to have appropriate DNA methylation. Alcohol, in particular ethanol, and its metabolites can disrupt this DNA methylation. They also detail how ethanol can also induce inflammation and oxidative stress leading to lipid peroxidation and further DNA damage. So, we're talking about, in particular with this, the potential for cardiovascular events to occur. So, again, these details are often not shared with the public at large. We don't consider these things that, "Hey, this thing could be literally causing cancer or be the reason why I or somebody that I care about may have been diagnosed with cancer." It is that serious. It's a causative agent for a variety of cancers.

Alright? Now according to the NIH, one of the major reasons that alcohol consumption contributes to cancer is due to its suppressive impact on our immune system. We all have cancer cells, we all have cancer cells pretty frequently day-to-day, but our immune system is primed to take out rogue cells. And when looking at the induction of a cancer cell, through our life cycle or through the life cycle of a cell, the cell is replicating. It's replicating and eventually over time it reaches what's known as the Hayflick limit. That's where it's time on the job is done. It's time for this cell to retire and leave the premises. Here's your compensation package. Alright? Get the AARP going. Your time is done. Alright? This is how it's working with the Hayflick limit. Now, with cancer cells, and this is a very rudimentary understanding of how this process works, but essentially the important thing and what I want to do is communicate this because most people are never taught how cancer works. Like what is a cancer cell? How does it...

It just seems like this boogie man, this scary thing in the dark and we're so in the dark consciously about what's happening in our own bodies. And so, when a cell reaches that Hayflick limit, again, senescence, onset programmed cell death takes place. But cancer cells are like, "You know what? I'm just going to stick around. I mean, I like it here." And they keep going, they keep going. They keep growing. And they don't have this programmed cell, they're not adhering to it. And so now this mutation is taking place because they're no longer functioning like a normal human cell. And so, they can start to grow. They can grow in their presence. They're going to start to evolve, in a sense, and also invoke the process of something called angiogenesis. So, they're going to start to pull in and develop their own system and interaction with capillaries in our bodies. They're going to start to take nutrition for our healthy normal cells. They are going to start to create pathways and tunnels via these new

epithelial bonds and capillaries through this process called angiogenesis so they can feed themselves and keep getting bigger and bigger and bigger and take over because they don't want to leave the job.

And so this is how we see the manifestation of something like a cancer tumor. Now, for more on this process of angiogenesis, we'll put a link to the episodes that we've done with Harvard researcher and the President of the Angiogenesis Society Dr. William Li. A really good friend and friend of the show. Because it's important for us to understand how are cancer cells actually able to grow? They have to develop their own nutrition supply. They do this through angiogenesis. Now here's the rub. There are a plethora of vital nutrients, specific chemicals found in food that are clinically proven again and again gold standard testing, randomized placebo controlled studies proven to be selective anti-angiogenesis compounds. Cutting off the blood supply. Cutting off the nutrient supply to cancer cells. Truly, truly remarkable. And this is something that we all have access to. Now one of those things that is clinically proven to function as a...

And this has been utilized for thousands upon thousands upon thousands of years as well and it's in a liquid medium making it even more palpable and easily assimilated by our system. Again, and again angiogenesis anti-cancer compound used for more cellular good as well versus the opposite and we're talking about the induction of alcohol in the case of cancer. This particular beverage is cancer preventative and what I'm talking about is highlighted in the study published in the Journal Breast Cancer Research and Treatment and it found that women who drank the most green tea had an approximately 20% to 30% lower risk of developing breast cancer. And this is an observational study, but the results are promising. Let's build on that. A meta-analysis of 29 studies published in the peer-reviewed journal Oncotarget found people who drink green tea daily were around 42% less likely to develop colorectal cancer. Almost 50% less risk.

Another meta-analysis published in the Journal of the American Medical Association Internal Medicine, JAMA Internal Medicine looking at the data from nearly 300,000 people found that drinking green tea can potentially lower the risk of diabetes by 20%. Now I'm bringing this up because diabetes is a huge risk factor for developing a myriad of different types of cancers. Now, as with everything that we continue to talk about, we have to have standards and where we are... We hear about the benefits of green tea and then we might run out and go to company X and get green tea and not knowing that we're consuming now a vast array of microplastics and toxic molds and all these other nefarious things that are commonly found in teas today. Because, again, people find out some of these things and they start highlighting the benefits to customers out there, especially in the age of the internet, and they're not really adhering to the high standards. They are just using catch phrases to get people attracted. They're not really passionate about this subject, about green tea, and doing all that they can

to make sure that they're delivering the very best thing because they really want to serve and help people.

And so, these are the people that I seek out. These are the people that I align myself with. People who really care about what they do deeply, and they care about people. And this is the thing that stood out for me from the very moment that I connected with the folks at Pique Life. Because not only is it deeply ingrained in the founder's DNA, this is his life, this is what he grew up with, and he sought out a way to help to heal people than he cares about and also to heal our community at large. And so, they are doing a triple toxin screen at minimum. Their matcha green tea is quadruple toxin screen for the highest level of purity, tested for pesticides, heavy metals, toxic molds, again, that are commonly found in conventional teas today. So also often, depending on which tea you get, they're wild harvested, alright? So, these are truly wild, which means they're richer in phytonutrients. In particular polyphenols that are attributed in a lot of these anti-cancer benefits, and so their patented cold extraction technology extracts these biochemical compounds at cold to low temperatures for up to eight hours. They're really putting their time and energy into doing this right. And, again, this is exclusively found at Pique Life. Go to piquelife.com/model. It's P-I-Q-U-E-L-I-F-E/model and you'll receive some exclusive deals that you simply will not find anywhere else. I'm telling you, go to piqueslife.com/model, you're going to be blown away.

Grab some of their teas, add this to your repertoire, they have over 20 award-winning flavors, and again, they're doing stuff the right way. We want to stack conditions in our favor. So, the beverage of choice, if we're talking about anti-cancer benefits, green tea is really in a league of its own. And, again, we want to make sure that we're getting it from the best source possible. So check them out, piquelife.com/model. Again, it's piquelife.com/model. Now, just to circle back and reiterate one point, when it comes to alcohol and the impact on our microbiome and our gut overall, the excess consumption of alcohol is now, again, clinically proven to damage our microbiome, yes, but also to our gut lining. Research cited in Molecular Medicine Report states that heavy alcohol consumption increases intestinal permeability and deranges the tight junctions that line the gut. Alright? So, we're talking about this term leaky gut, but what we're looking at as far as a clinically tagged process that happens in the body is intestinal permeability increasing. So, these tight junctions start to open up, allowing in things into our blood stream that should not be there.

Now, this can be the foundation or the onset of a variety of autoimmune conditions as well. And if you start to look at the connection with alcohol consumption and auto-immunity, this is a whole other conversation. But I want to move on and talk a little bit about the thing that's a little bit more well-known in our society, but not really. Alright? We're going to look at the impact that alcohol has on brain health and cognitive function. It's well documented, obviously, that long-term heavy drinking can cause high rates of brain shrinkage. But a 30 year and now

this is published in the BMJ, the British Medical Journal, one of the most procedures journals in the world, found that even moderate drinking can have a similar effect on shrinking your brain. The researchers used MRIs and uncovered that even moderate drinking over the long-term causes shrinkage to the hippocampus. So, this is the memory center of our brain is going to be shrunk over time via the consumption, even moderate consumption of alcohol. So, there's a lot tied to alcohol consumption and being able to remember stuff, but we're talking about literally shrinking that part of our brain. Now, the amount of shrinkage appears to be directly related to how much a person drinks. So, again, there is essentially a parallel line, they're walking hand-in hand with our consumption of alcohol going up and our rate of brain shrinkage increasing.

And nobody wants shrinkage, okay? Nobody wants it. But especially when it comes to your brain, this is no joke, this is something we need to be mindful of, because with that and the association in our culture, especially as we get older and losing our memories and various forms of dementia and just one of the major forms of dementia is Alzheimer's. And right now, as of this recording, it is the sixth leading cause of death in the United States. Alzheimer's is the sixth leading cause of death. 'Cause you're not just forgetting facts about your life; you can forget how to do basic functions. And it's such a terrible way for us to age. And there are things that we can do to stack conditions in our favor. So, in addition, another meta-analysis, and this was published in the peer-reviewed journal, Brain Behavior and Immunity, the scientists stated, "Alcohol abuse not only induces inflammation in the body and brain, but it also causes significant changes in immunity and increases susceptibility to a variety of infections." Now, you know there's been an infection that's been running rampant in the minds of our society the last few years. And guess what? There's also some data affirming how alcohol consumption dramatically increases your susceptibility and also hospitalizations and death from interaction with this particular virus.

And it's really on the foundation of how it suppresses our basic immune function. Now, let's get back to some of the more light-hearted stuff with the alcohol drinking, because a big effect with alcohol consumption and why we might feel good is it's triggering the release of endorphins, this kind of feel-good, this feel-good chemistry is getting produced in our system. And what's interesting is that endorphins are often released in association with a pain input, but these feel-good molecules are the reason why light to moderate drinkers feel more relaxed, more sociable, more happy when drinking.

And alcohol is also a well-documented neurotoxic. So, we've got this induction of a pain relieving release with the endorphins, and also, depending on our unique metabolism, this can tip us into a place that's very dangerous. Because short-term over-consumption even, just a short-term over-consumption of alcohol can trigger alcohol poisoning and interfere with parts of your brain that are responsible for basic life support functions such as breathing, body

temperature and heart rate. This is another thing that's not often talked about in our culture, is how often people actually die just from an acute exposure to alcohol, just a night of binge drinking, and then they're no longer with us because of its impact on our brain and nervous system and basic life support functions. Again, like being able to breathe, this part of the brain and our nervous system and our respiratory system can basically get suppressed. And the same thing with monitoring our body temperature, we can overheat, sort of like a car and dramatically lose function. And also, our heart rate of course. These are all things that some people might have had an experience or witnessing or hearing about something happening to somebody. But truly this is at the heart of why this can be a dangerous thing to interact with, so we got to be careful when engaging with the substance.

Now, this is a very intimate subject for me personally because I've seen first-hand with people in my family as I was growing up in a household where alcoholism was the norm. And something that I saw on a regular basis and seeing people passing out and losing function, being hospitalized, and not to mention all of the other mood-altering behavior, altering behavior that came along with that, it really conditioned my psychology to be very on guard and to be very aware of the detriment potential. But here's the rub, my stepfather, who he and my mother got together. I was a baby; I wasn't online yet. Alright? I was just maybe 9 months old, according to legend, and until I was about maybe 8 years old, I didn't even know that he wasn't my biological father. So always had him there, and it was a very kind of stoic scenario and also a constant alcohol scenario within our household. And me and my younger brother and sister, we liked when he first started drinking 'cause he was sociable, he was nicer. This was the first time that I can remember him telling me that he loved me. He was drinking a little bit. He was like, "I love you. I love you."

But then it transitions from this sociable and more jubilant person into somebody who is violent and aggressive. And you don't often know when that point is reached, but frequently is reached. And it doesn't matter how good of a person you might be and your intentions, when under these circumstances, we can do things that we deeply regret and hurt people that we deeply care about. And so, I've seen this happen again and again and again in my reality. And I remember one specific incident that changed my life, and it was one of those moments where there was before and after this moment. Obviously, I've been on the receiving end of some of the violence. I've witnessed some of the violence but was still... There was still a bit of normalcy to it, and this is crazy that I'm saying that this is normal. Now, this is the one time, the one... I was always... Once I got in middle school, high school. If we doing the sleep overs, I'm going to my friend's house, they're not coming over to my house. They're not going to be a part. I was raised by the wolves, they're not ready to do this. Alright?

The one time my friend from high school, he came to stay, "Let's stay at your house." "Okay." Alright, so my guy, he comes, he stays over, we're hanging out in the kitchen. It's me, my friend

Demone and my little brother, and we're just sitting around a table, chopping it up, and my stepfather is drinking, and he's gotten past that point. And my little brother is in the back of the room, the back corner of the kitchen, sitting by... We had a large plastic trash can, one of those outdoor joints. And he was just sitting over there and for whatever reason, we were just joking, laughing, having a good time, but my stepfather thought that he, my little brother was laughing at him, he thought he was laughing at him, and so he left. He came in and he's talking a little crazy, and he left, he's like, "Oh, you think it's funny?" And he left. And when he came back, maybe two minutes later, he was wielding a bat, a real bat, and he went straight for my little brother who was maybe like 11 at the time, and he swung so hard to hit him that he split this plastic, this heavy-duty plastic trash can, he split it, my brother just got out the way.

My friend Demone gone, he's outside, gone down the street. He was gone. He had the Toretto, like the jet thing, the nitro. Boom, gone. And he is just that kind of guy. Again, he wasn't ready for this. And now I'm trying to protect my little brother like, "What are you doing? He didn't do anything." And just trying to calm him down, that's the thing. And I realized that day, my job constantly was trying to calm him down, keep everything cool, finding a way to talk to him in a certain lane as to not incite violence. And so, I spent a lot of time playing video games with him. We do these little things where he just say cool. But in that moment, we were disconnected, and things got out of hand. And cut to moments later, him still trying to go after, my little brother is now outside. My stepfather, we had a porch that was probably about eight feet off the ground, he tried to climb over the ledge of the porch, my stepfather landed face first on a concrete, face first.

And got up, zombie like got up, 'cause that's what kind... He was so strong, so strong, so much heart. Such a... And it's so crazy to be able to say this, such a beautiful person inside of all of that, but it didn't matter. When it really boiled down to it, these conditions, these things that we do to ourselves, our psychology can make the very best people with the very best intention do very terrible things. So, I'm talking about this subject today from a place of experience, because in that moment, that day, I had reservations about engaging with alcohol, but in that moment, I decided I'm never going to be like this. I'm never going to be like this. And I thought that my brother and sister, we were on the same accord, we're not going to be like this. But being in the environment, what do you think is going to happen? Chances are they're going to replicate that behavior. I'm standing here with you today, a sequence of what can be considered miracles. At the foundation, they were a series of choices and perception. I saw exactly what I did not want to be, and I saw exactly what created it, and I decided to do other than. Now, here's the problem, I didn't know what other than looked like. And so, it took a long period of struggle of trial and error/trial and success to figure out, how do you live?

How do you have healthy relationships? How do you be a healthy person? How do you not hurt the people that you love? And it took time, and it took a lot of work. And I'm so grateful for

this, because even today, as I stand here, and if I could tell you the long-tail effect of my stepfather right now, he's in a home right now, and he still is has... He's still young, relatively young, he's been there for many, many years because of the brain damage from drugs and alcohol use for so many years. And I think about him every day, and it's a big catalyst for me doing this work that I'm doing. And I just want to make sure that we all feel empowered and educated, and we also know what's going on behind the scenes with our bodies, with our minds, so that at least we're equipped with the knowledge on how this stuff works. Because most of the time we're just doing things. We're just replicating things and we never get to know what's happening behind the scenes, and to feel a sense of empowerment in the world that is constantly seeking to disempower you.

And so, I appreciate you giving me the opportunity to share my story, and I deeply ask that you have compassion on my passion for this. Moving on, we've got... Obviously, there's a huge implication with alcohol affecting our brain and nervous system, but the same thing holds true with things that are nutritive for our brain and for our nervous system and being able to cross the blood-brain barrier is quickly in the same league. Same category of something like alcohol and make our brains better. And as I mentioned before, Alzheimer's is now the sixth leading cause of death in the United States. It's creeping its way into the top five cause of death for our citizens here. And it's a condition that's largely considered to be incurable, all you can do is try to slow the progression, you can't get any better, that's the narrative in the field.

Now, as you know, what we've had on the very best, we're talking about the best of the best neuroscientists in the world on this show. Neurologist and people who are doing brain imaging, be it Dr. Daniel Amen, be it Dr. Andrew Huberman, be it Dr. Lisa Mosconi, the list goes on, and I'll put their episodes for you in show notes, you have so much power in this equation, this does not have to be your story. In that vein, we have to realize that our brains are literally made from the food that we eat. Our neurochemistry, the ability for ourselves to communicate, these are all based on nutrients. And so, the question is, what are you making your brain out of? What are you making the compounds needed for communication? What are they made up? Because nutrients don't just make our tissues and ourselves, which every cell in your body is made from the food that you eat. Our nutrient and our intake of nutrients or lack thereof is used for fuel to run everything.

So, it's not just the solid thing, it's also the fuel to run them. Now, when it comes to fueling the human brain, many people have heard the saying that the brain is mostly made of fat. Alright? Now, protein isn't that far behind. The brain is mostly water, first and foremost, and we've talked about that as well many times on the show, but of the dry weight of the human brain it is mostly made of fats. But not all fats are created equal in the mind of your brain. Alright? Your brain actually has the capacity to, via the blood-brain barrier, to invite in in droves certain types of fats only exclusively. When we're a baby in development, a significant portion of

human breast milk is saturated fat because it's so required for the brain to build itself in those early phases. But over time, the gates that allow in saturated fat start to go down. And throughout our lifetime, though, what remains true and what remains important is the intake of omega-3 fatty acids because they're needed to help our brain cells, which once we reach a certain age, our brain cells, unlike other cells in our bodies, they live a very, very long time, if we take care of them. Okay? And we don't want to lose a lot of brain cells prematurely. Okay? We don't want shrinkage; we don't want premature ending. Alright?

So, what do we do? Keeping in mind that these fats are need for signal transduction, where our cells talk to each other, they're needed to actually repair, regenerate, protect our brain cells. Omega-3s and also, MCTs. Research that was published in the Annals of the New York Academy of Sciences had research... This was a remarkable study, by the way. And the researchers sought to find out if MCTs can have an impact on improving the condition of patients with Alzheimer's disease. Now, again, it's well noted that Alzheimer's disease is consistently accompanied by an impairment of glucose uptake into our brain cells themselves. There's a sort of insulin resistance taking place in the brain. This is why Alzheimer's today is being labeled as type 3 diabetes. With this being the case, the scientists in the study discovered that since medium-chain triglycerides or MCTs are quickly metabolized by the liver, prompting the production of ketones, those ketones are then able to easily cross the blood-brain barrier and to provide an alternative fuel source for the glucose-impaired brain cells of Alzheimer's patients.

So, what happened? The scientists found that the consumption of MCTs directly led to improved cognitive function in mild to moderate forms of Alzheimer's disease and cognitive impairment. They got better. Just about every day, I utilize MCT oil, have been for many years. And I'm not saying that it's a reason why this ability, this cognitive performance, but it definitely isn't hurting. And so, for me and for my family, I want to stack conditions in our favorite to be the very best that we can possibly be. And even today, when my wife, she's head out the door, I'm making her a drink with MCT oil. And so... But, again, this is a place where you got to make sure that you're getting it from a source that truly cares about the process. You don't want palm based. You want coconut based MCTs. For me and my family, what I've been utilizing for years is from Onnit. Go to onnit.com/model, that's O-N-N-I-T.com/model, get 10% off their MCT oil, their original MCT. They also have emulsified MCT oil, so it's kind of like a coffee creamer. And also, they run several other supplements through randomized control trials with universities to really prove their efficacy. Their Shroom TECH Sport, their pre-workout, and their Alpha BRAIN nootropic. Number one, they're from earth-grown sources, and they're running them through clinical trials. What companies are doing that? Onnit does. And this is why, huge fan of them. And again, them out, onnit.com/model. O-N-N-I-T.com/model.

One other area I want to look into here and give you insight in is the impact of alcohol on our sleep. A recent meta-analysis confirmed that drinking alcohol close to bedtime does in fact help people to fall asleep faster. We know this. Take the edge off. What's out there? But there's a huge catch-22. There's another component to this. Cited in the peer-reviewed journal, JMIR Mental Health, the researchers found that even one drink close to bedtime can significantly impair sleep quality. Moderate alcohol consumption was found to lower restorative sleep quality by 24%. And high alcohol intake damaged sleep by nearly 40%. The whole paradigm of a hangover isn't just about the impact of the alcohol alone. It's also about the impact that it has on our sleep and our ability to recover. Because alcohol is, again, clinically proven to disrupt our sleep cycle. In particular, it's known to create this phenomenon called a REM rebound effect.

So, essentially, with alcohol in our system, after we go to sleep, again, it can help to induce because it's a sedative, our REM sleep gets delayed. Now, REM sleep is where a lot of memory processing takes place. So, in particular, very, very short-term occurrences get processed. And so, with this part of our sleep being disrupted or damaged, the REM sleep, we might not remember what happened recently. Alright? And I don't know if you know somebody that might not remember what happened last night, but this is the reason why. Now, in addition with the delayed REM sleep and/or suppressing it, it also leads to insufficient recovery of critical brain and bodily functions. It's not just the memory processing thing. There's so many other aspects of this. And so, considering this, if we're going to be drinking and we want to make sure that we're recovering, your incidence of having a "hangover" is dramatically reduced when you can sleep and give your liver the ability to process out the toxicity.

So, here's a couple of things. Number one, obviously, we can skip the alcohol. If you're going out, you don't have to drink just because you're doing something. Number two, you can give yourself an alcohol curfew. So, give your body some time to be able to process and metabolize the alcohol and get it out of your system so it doesn't disrupt your sleep. And in addition, there is this saying that nature's solution to pollution is dilution. So, utilizing more water, making sure you're drinking plenty of agua, and helping to, again, flush the system out and reduce the impact that that alcohol is going to have on your sleep structure.

Now, today's episode is part of a mission that we have this year with The Model Health Show. And every single month we're going to highlight a food or beverage and truly do a deep dive, we're going to do a master class into that food or beverage to provide layers upon layers of insight and empowerment when it comes to these various foods or beverages. So, again, just being aware of the potential benefits. In some cases, like today, potential downsides and negatives that start to kind of stack up that we need to be aware of. But either way, it's about getting the education into more people's hands and hearts, so that we can make informed decisions on whether it's something that is viewed as something that's health-affirming or

health-detracting. Now, in the paper that we began the episode with, which, again, was featured in Proceedings of the National Academy of Sciences, the scientists later suggested that problems people have with drinking, such as heart disease, liver disease, mental health problems, result because humans have not evolved genes to sufficiently process ethanol. Similarly, the researchers affirm, humans have not evolved genes to handle large amounts of sugar, thus seeing these epidemics of obesity and diabetes. And the list goes on and on.

What they're trying to say is that number one, evolution takes time, a long time, and the conditions that we're living in today with vast amounts of sugar and alcohol at low cost are readily accessible 24/7, we're living in conditions that we're just genetically not wired up for, and we're going to experience the onset of dysfunction. Our bodies are going to find ways to adapt under un-ideal circumstances that we're creating within our bodies. And that internal expression and your inner world being a reflection of your outer world and your outer world being a reflection of your inner world, we have to be mindful of the environment within our communities. And that's another big part of this for us to address moving forward, because every single epidemic, there are corporations and entities that are profiting from them. And so we can try to fight the power and try to go after all that stuff, but the change starts within our own home. It starts with you and the decision you make for your body, for your health or your family, and then we can start to spread that out to the greater community at large.

I appreciate you so much for tuning to the show today. If you got a lot of value out of this, please share this out with your friends and family. You could take a screen shot of the episode, tag me, I'm @shawnmodel on Instagram and Twitter. I'm on Twitter as well. And I'm at The Model Health Show on Facebook. And of course, you can send this directly from the podcast app that you're listening on. And we've got some epic master classes and world-class guests coming for you very, very soon, so make sure to stay tuned. Take care, 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 can 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 this 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.