Unlock Energy: The Secret Of Deuterium-Depleted Water Transcript

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Introduction to deuterium and cancer metabolism

Well, Dr. Petra Davelaar this is this is such an important subject, and I'm so excited to discuss it with you. Thank you so much for joining me at, on this summit.

thank you, Dr. Karlfeldt It's my pleasure. And and I'm very thankful to be here. So one of the topics that, that you've done a tremendous amount of research and, and that is, is becoming more and more important in regards to, you know, people battling cancer.

Is a subject about detection. can do you mind sharing a little bit? What is the terrorism and why should people, you know, why should they care? Yeah. Great question.

so let's start there. Indeed. Deuterium is the stable isotope of hydrogen. Hydrogen, is the smallest atom that we have. and it is everywhere. It's in food.

It's in water. It's it's the most abundant. And, and deuterium is simply when we say isotope means another form. most, a lot of elements have different forms, different isotopes.

But the unique piece about hydrogen and deuterium is that there is a 100% difference in size and weight, and that's not ever the case with any other isotopes.

When you look at carbon, for instance, it's maybe 8% different. So, this is is very, very significant. And over time, it has become clear that the, excess of deuterium in our bodies.

And like I said, it's everywhere. It's in water, it's in our food. We get it in and always. And if we have it coming in in excess amounts, ultimately the result is mitochondrial dysfunction.

And there's a long way to get there. And there's many pieces to that that the pathway of that happening. And that's what I want to talk about a little bit and, and see if we can provide some clarity. But the reason why we really haven't heard that much about it and I'm, I want to share a name of a paper that's really great here.

allow me to do that. Here we go. and, this was a paper that was published by, a team from NASA and Georgia Tech, and it's called Water and Life. The medium is the message.

And in this paper, they really, came to the conclusion that even though in all of the textbooks, the medical textbooks about chemistry textbooks, water is often assumed an inert, you know, solvent, like, it's not even described or mentioned or drawn into pathways that are fundamental.

And so they truly define water as a chemical cornerstone. And it's really never an inert, solvent at all. So, in fact, they call it the most frequent dominant chemical actor in metabolism.

And, water is frequently and repeatedly serves as the substrate, meaning the starting substance and then the intermediate and then the cofactor end products.

And so really a third and half of all biochemical reactions involve water. So, this is it's very fundamental. And once we start understanding that most of our body is made up of water molecules, right.

It's anywhere depending on your age, 60 or 70%. if we have an imbalance in the ratio that is higher in deuterium than it should be, we get dysfunction.

And so that's, really the foundation of, does that make sense? Yeah. And that's and I don't think people realize, you

know, because we we learn about water and we think water is exactly what you're saying.

It's just a medium that other things that are important are being transported by. Yeah. That, you know, that's where protein can be transported. Amino acids, fatty acid, and all these different things that, that are important, you know, they, they just move through the water and the water is just kind of this, you know, this, this space that that just kind of helps it to move back and forth.

So here you're saying then that the water in itself, over and above all these different. Yeah. The this amino acid or that vitamin or that. Yeah. Actually is the, the most important metabolic, you know, component that we need to really, really focus on for, for our on minor energy production health.

How deuterium affects mitochondrial energy production

Yes. Perfect. So you've been right there. So. So what? Another piece of this huge foundational puzzle is that we, our bodies, produce metabolic water.

This is deuterium depleted. And the quality and quantity of it depends on the types of food you eat. And this is not something that is very well understood or known at all.

So we, recycle and produce, synthesize possibly up to 2000 gallons of water in a 24 hour period. So. I'm sorry. Yeah. Did you say 2000 gallon? Yes. That is all being turned over, produced as well as recycles. Yes.

So this is massive, you see. And so this, this innate water production that we have is an essential piece of energy metabolism. So what this paper that we will talk about briefly in, in a little period, but I want to first explain this piece.

They have calculated that the production of this metabolic water, the synthesis of it itself, produces into the order of ten times as much of energy in the form of heat versus ATP.

So this should put mitochondrial health and an understanding of mitochondrial medicine entirely upside down on its head, because that's not what we've been told and learned and what we know.

But if we actually look at what happens and where the energy comes from, it's utterly fascinating. And it's this piece that needs to be prioritized in everyone to obtain the best health and the most effective energy metabolism.

So I want to kind of walk and I want to get there again where you just finished, but I want to kind of gain a little bit more clarity in regards to deteriorate.

So you're saying that it's like 100 times more. So I picture myself like a hydrogen molecule or a hydrogen ion. You know, it was just one little iron.

And then the deterioration is that like several bunches of different hydrogen ions and makes it that much bigger or it's just a hydrogen ion that's 100 times bigger than.

No, it's not a hundred and it's not 100 times, it's twice as big. So but the difference is 100%. Oh okay. Yeah. Yeah. So so that to just to be clear and and so how you can imagine that a hydrogen is simply, an atom with one proton and an electron, the deuterium has a neutron at it.

And that doubles its size and the weight. That's it. But, you know, because the size of different every shape of a molecule will be different. Yeah. Any protein that's formed with it will have a different shape because of this size.

it's it's another important piece is to think about this bonds that are normally broken, a hydrogen carbon bonds or hydrogen nitrogen bonds is is much more difficult to break than hydrogen.

And, deuterium. Deuterium bound to carbon is much more difficult to break than hydrogen to bound to a carbon. So

normal processes don't happen the same way.

If deuterium or a deuteron is attached to a molecule, that changes everything. Yeah. Does that make sense? Because we because we have I mean, when you break these bonds, I mean like when we digest things, when we break things and break bonds, that's when also energy is being released.

Right? So it means that they will then require a tremendous amount of additional energy to be able to break that and then be able to receive less. So kind of the sum total is actually less energy.

Yeah. Yeah. It almost seems like. Yeah. And and it's also the ultimate constraint of, of cell of the cell metabolism. That's another piece to think of it.

And we also call deuterium an uncle isotope, meaning that if there is a large amount present within the cell in the DNA structure in, it will force the division of cells, and that's what spurs it on.

So it's it's really very, very interesting. But there's a lot of that data on my website. And I describe all of these processes in detail in some of the presentation.

So I refer you to that. I think we should really focus on this paper because this brings this to another level. Okay. Yeah I, I just want to kind of get, get the set the stage and and understanding and and also so just to kind of reiterate what you said again in regards to the production of energy.

So you're saying that there's, you know, just the, the, the water, this deuterium or the metabolic water that we're producing creates more energy than ATP.

So are we talking about the and the mitochondria, which we know is the energy factory of the cell. So is this water somehow part of the mitochondrial process or is that separate from it?

Nope. It's it is. It happens at complex four in the mitochondria. In the membrane. Yes. It is the same. It's the same pathway. It's all it's all related.

Yeah. So I will show you that okay. Very specifically. Yeah. love love it okay. So I'm sorry for interruption. So okay. No no no no no no no no. No to take take it away.

So we we got we we and we know that cancer is a, metabolic dysfunction. Yeah. So a cell that is not metabolic li healthy is more prone to shift into a cancer behavior.

So obviously, because of that, no, how to optimize energy production within the cell becomes key. And then, you know, knowing, you know, the the impact yttrium has and interfering with that, it becomes really important.

It's essential. Yes. Yes. Yeah. So I'd like to explain more about the mechanisms with this recently published paper please. I think that will really help you.

So let me just introduce it. So, this is about climbing Mount Everest. And so that is one of the highest mountains, if not the highest. I think it's 8848m high.

And 2023 happened to be one of the most deadliest years, of climbers trying to summit. And at least 12 people were confirmed, dead, but another 20 or more were missing and presumed dead as well.

And the reason why this is just so complex. And let me pull up the title of the paper so everyone can look at that later on. there we go. So here we go.

Mount Everest case study and the mitochondrial-paroxysome hybrid engine

So summiting Mount Everest and, the reason why it's such a difficult thing to accomplish for these high altitude

climbers is that there's a decreased atmospheric, oxygen pressure at those levels of altitude and that decrease, severely compromises the gas exchange in the lungs.

And, what has been found based on this fascinating case, history that the, crosstalk between two very important cell organelles can overcome this limitation of a lack of oxygen in those altitudes, and therefore, to compensate for this lack of oxygen and still maintain levels that are efficient.

And that makes you able to actually achieve climbing the, Mount Everest without supplementary oxygen. Right. So this is a case of, a man named Adrian Ballinger, and he had attempted to summit six times.

All six times he had done so on a carb loading type of diet, of a nutrition style he brought with him, you know, high carbs. He ate a whole pizza. He had these gels, carb gels with them, and all six times he had to abandon his mission because he was not able to do so.

At least he was still able to make the decision to come down, which this is a big problem. You are also not able to think clearly when you're that high.

It's not just physical, but it's also mental health, so you cannot really accomplish the important tasks anymore. So he then he was very determined and decided to adopt a ketogenic diet.

And this was the key to his seventh trip success, where he made it. And that was May 27th, 2017. And so based on these examples, calculations were made and, and here is what I'd like to explain it at.

So if you look at exosomes and mitochondria and these are cell organelles right. And mitochondria as you just said are known to be the battery of the cell, if you will. And, You know what?

What's a paroxysm. Yeah. Paroxysm is a small, other cell organelle that is strictly there to, produce for things. And it does that by breaking down fatty acids.

So if you look at a here on the top, you see very long chain fatty acids and you see, brands chain fatty acid, sodium abbreviations. That is the input for paroxysms.

if you understand it, mitochondria does break down fatty acids, but only up to the length of 16 carbons. It cannot, breakdown any longer chain fatty acids than that.

So that has to happen through the Baroque systems and a branch chain fatty acid is simply one that has a additional branch sticking out of it, either one to or multiple of poly branched chain.

And so those are primarily found in dairy. But so that is the input to the Baroque systems as well as dissolved. oxygen from the blood supply. That's the third piece that comes in.

And from that, paroxysms produce four things. First, hydrogen peroxide. And that will be depleted in, deuterium because fatty acids, particularly natural or long chain fatty acids, are particularly low in deuterium.

So now we have hydrogen peroxide that gets transferred to the Mito conjugate. And there catalase immediately. It's the fastest enzyme in known I believe it's less than zero seconds I think.

And it immediately produces metabolic water and recycles the oxygen piece there. So fundamental way to create, energy and recycle the oxygen in your body to be able to perform in this constrained environment.

Right. And then, the other three things. So it produces shorter chain fatty acids again, that can then be broken down by mitochondria. It produces ketone bodies and it reduces NAD.

So those are the four fundamental pieces for the paroxysms. But paroxysm foams. you can think of this and this is an analogy, by the lead author of this paper, Doctor Laszlo Barouch, who, describes this mitochondrial paroxysm

crosstalk as a hybrid engine.

And these both, will work most efficiently and only to this extent that I'm describing here. If you are in a natural state of ketosis, then they work together and you can think of the paroxysm as the diesel engine and the mitochondria as the, gasoline engine with the spark plug plugs.

So, does that make sense so far? Yeah. So, so if I understand, you rise, you have the proxies, so that produces four different substances. Yeah. and the interaction, it looks here like the, the short chain fatty acids.

Yeah. It's it's brought in here as part of the mitochondria. And then you have the nadda, you know that that gets kind of that plays a role within the mitochondria.

So but looks like those are the the communication points sort of say, you know, between the two, as. Yeah. So, so it's it's very important to realize that, that the paroxysms can only breakdown fats.

Mitochondria can do fats and also certain sugars carbs. Right. So so that's that piece. and the other part I wanted to share is about the nad. So, so nature's is fundamental.

That's you you probably use nad in, in your treatment protocols. Many people do so. But nad really is is fundamental. It's created in both mitochondria and in the TCA cycle.

You can see that here on top in the, in the green one, you see the the Saint George Krebs cycle or the TCA cycle and the products there. are metabolic water, H2O, nad H and carbon dioxide.

And, and you can only, get all of those with you, for complete biological oxidation of all the foods that you consume. And that's the key because the carbon dioxide is ultimately the only way you let go of carbon.

Again, you breathe those out and, before it leaves, I've just come across some other incredible, new information and research by bearing in, who, actually shows how first carbon dioxide lines the and the sea level surface layer, like, okay.

And actually is instrumental in, you know, dealing with viruses and, and bacterial infections and it's, it's another piece of carbon dioxide. But we'll, we'll go there right now that will be later.

But gases ultimately are the key to all of this. And this production of water can happen because of that. So the nad h drops off. So so it's an age for hydrogen, right?

And, all foods we consume have to be broken down. and, the, biological oxidation of that, the hydrogens on carbohydrates and hydrogens of fat, they form the nad h.

And if there is a deuterium attached to that, it won't work. You won't. If there's too much to term coming in, the whole reaction won't take place. So a hydrogen has to be dropped off at complex one.

And that's here at the Oxford of fast. If you see the bottom of the mitochondrial, you see oxidative phosphorylation where NAD gets dropped off. And that happens at complex one.

And the H. the hydrogen gets taken off, and the electron gets pulled out. And now the H without an electron is a proton. And that proton then gets pushed into the mitochondrial inter membrane space that gets pushed out and then through, if you will, the spark plug the complexes, move the, electron over to complex four.

And they're ultimately, the sparkplug functions to separate the oxygen into what is what is not molecular oxygen? It's, a single O2 and then how the metabolic water gets produced and that reaction.

And if you see here on top that produces 286 kilojoules of mole of, of energy. And if you look down at the bottom, the production of the ATP is roughly 21.

So it's a ten times difference in energy. So and here is the table in and it outlines that there is some production as well. From the hydrogen peroxide that you produce from the paroxysm.

So that system, this hybrid engine as you can see, produces an unbelievable amount of energy for a system to continue to run in a constrained environment.

So that is really, what I wanted to highlight from this paper. Yeah. that's that's powerful. So yeah, because we're we're always thinking that, you know what?

We're the only way to gain energy is that we got to eat. Yeah, we got to eat. you know, you said carb loading, protein got to eat, and and just kind of breaking that down is what, what produces the energy.

But here we gain energy just simply then, you know, in the baroque sounds that it seems like good quality fat. And then also you have them from the metabolic water that's produced in that process as well.

So it's almost seems like there is a connection then between good quality fats that you're eating in that ketogenic diet. Yeah. And then and then the production of metabolic water and high level of energy that's being produced, you know, from that process.

That's correct. Yes. And and just keep in mind that we produce twice the amount of metabolic water from fat as compared to carbohydrates. So it's it's a very, very, substantial difference.

And then if you have and there's certain foods that are then high into tourism. Right.

Diet, water intake, and lowering deuterium exposure

So yeah, if you so that you can actually then create a diet where you eat food that have less to tell you a minute, that will then be less of an interference of this process to produce energy.

Yeah, that's absolutely true. And so the foods, the lowest in deuterium levels are natural fats from animals. And so, those animals will have to be in the grass fed or at least grown in their authentic habitat and fed the diet that is natural to them.

and then we have, some vegetable, fats and then, proteins from animals again, the best quality you can find. and then you get into the green vegetables area as the process of photosynthesis depletes to some extent as well.

And then you start coming up higher and higher. fruits are quite high and then greens are higher. And then you get the processed foods and you know, one of the, the waters that's very high is coconut water.

And people never realize that they think it's a health food, but the reality from that coconut is that they put the deuterium in the water in the fat is low in deuterium.

So that's what you want to concentrate on. If you consume coconut products. but really another way that most people are deuterium loading, if you will, is by consuming excess amounts of water that they don't need.

And so there is a tendency to, adopt this recommendation, that you supposed to drink at least half your body weight in ounces, which is not based on any biochemical or physiological foundation whatsoever.

and that actually causes you to take in a high amount of deuterium because regular drinking water, depending where you are. Right. And this difference, even in state by state in the US and all over the world, but in general, most waters that we've tested are around 150 parts per million.

So that is pretty high. So then I should define for you what ideally what we would like and a system, a body that, has the parts per million of the concentration of deuterium in you.

And we can measure that in breath and we can measure it in urine and saliva. these are the most useful. And generally your breath is lower than the other two because those are mechanisms to actually secrete excess levels.

and, those ideally are around 130 parts per million. So lower and you can only achieve those lower levels. and certainly as we age it, it's very important to achieve that with foods that are low in deuterium and of course, not drink excess amount of water that's fairly high.

So spring waters are lower. they may be around 1:40 p.m.. So that is something then that you want to do, but you want to really use water as, something you need only based on thirst and, start learning again what that is for your body to say.

Yes, you should drink right now. And even if you have that feeling to say, okay, maybe I can sit for ten more minutes and let my body up, regulate the production of its own metabolic water, and at the same time manage your antidiuretic hormone, which is a very important hormone, because if we drink lots of water, we shut that down.

Right. There's no more Ada. And not only that, we change the osmolality of our blood supply, and it actually expands slightly and through circulation.

And, you know, the pituitary gland is housed in this very small little, you know, tell a story. I can always get that wrong. Sell it or Corsica and, if you increase the blood supply, there becomes pressure on that.

And we also know that if 80 H is not secreted, other important hormone precursor sources are not secreted because they are what's called Co secreted. And then we talk about trough and releasing hormone.

That gives is your precursor for all your sex steroid hormones and oxytocin and thyroid hormones and so forth. So you get a lot of dysfunction just from drinking too much water alone.

And so if you would drink, you know, let's see, drink lots of water has a lot of deuterium in it. And that means that and that's kind of going in circulation, you know, and and we know through osmosis that, you know, we have fluid is pulled to where it's a higher concentration of, of substrates.

So I have substances sort of say yes. And so that would mean that you're actually then kind of dehydrating it, it almost sounds like you would then dehydrate your cells are because so, you know, you have these bigger auditorium hydrogen, you know, you know, particles that floating around in your bloodstream, right?

Yeah. You're loading it. And it's it's interesting because there was a paper done, I think it was 2016, and it was funded by the beverage industry. And they compared to 24 healthy young men, and they compared 7 or 8 different types of fluids to see, which one they wanted to create a hydrogen, a hydrating index to see which one would be the best.

So they asked them not to drink anything after a certain hour and then come in and drink over 30 minutes a liter worth of either regular water, iced tea or orange juice a, hydrating solution that had salt in it.

whole milk, low fat milk, some coffee. And I think that's it. So they started measuring and they had planned on measuring it for four hours. How much everyone would be excreting?

Well, they stopped measuring after two hours because everyone was excreting way beyond what they had taken in. So we're we're talking 1.4l. Even though they drank a leader in two hours, they up.

So the only ones that did okay, not as bad was the, the salted one. You know, the hydrating solution. And most likely in my view, because it was deteriorate lower in deuterium.

It was the whole milk. Right. They didn't do as bad. So this is a very significant other piece of it. Like just if you're drinking more of you're not holding on to it, you're pushing out more so and you're and you're changing all of your electrolytes and the balances and so forth.

So yeah, that's it. And this kind of salts because I have, you know, patients that dealing with. Yeah, I think it on one particular dealing with prostate issues. And and at night he was measuring how much he was peeing and is peeing way more than he's been drinking in the day.

And there's it was like he was just wondering, where's all this water coming from? And it's literally and coming from water that he's producing himself.

Yeah. Pushing it out, trying to maintain osmolality in the bloodstream, all of that. So yeah, it's it's so interesting to learn about this. So I'm curious, how much do you drink in a day?

Not much. It's my coffees. And, And then usually not till something in the afternoon. and. Yeah, maybe a few glasses, but most of my water is in coffee, to be honest.

And food in my food. Yeah. In my food and. And coffee is, is that low and deteriorate then. Or. It's just, that's just. I, I produce it. Would I make my coffee with the term depleted water with a concentration so that I feel like I can.

I'm fine with that. Yeah. I use the best quality coffee. It's a very phyto, nutrient dense beverage. So yeah. And and so to get so you mentioned then deuterium depleted water.

So there's a way then to get deuterium depleted water and and use that as your, your drinking water. Yes. And and it's a very costly process for it to be made and then shipped.

So I want to, you know, the reasonable and, and most people probably won't be able to afford it, but it's, it's a very important piece for me. It's my health insurance.

This is how I look at it. it's possible to obtain it. And, but you don't have to drink it always. You can just drink it, you know, for periods in, in the year to kind of set that lower level again and move from there and live your life without, taking in consideration that there's other ways that we can help regulate deuterium in our bodies. Right.

So being outside and, and, making sure that you receive enough, sunlight and infrared light because sunlight is 42% the whole day, every day, infrared light.

And it's a very fundamental for all of these mitochondria processes. And it makes the water less fishes and moves better. And you produce, you know, again, the metabolic water at higher rates because there are chromatophores and so forth in the complex for and so, there's other pieces to help you along to maintain lower levels.

And I encourage everyone to do that. And of course, it's breathing and it's, sleeping in a dark room for a sufficient amount of time in all of the other pieces that really play a role in, in regulation of deuterium in your body.

So and you mentioned sunlight, infrared, you know, and we also we have kind of the yeah, the fourth stage so to say and and you know complex for you know, which is very kind of infrared red.

Yeah. Dependent. Yeah. In the mitochondria. So it almost you know, it almost then sounds like if you're exposed to sunlight and you're then supporting, complex for in your mitochondria, you're able to produce more of that metabolic water just by being in the sunlight.

So you actually you get hydrated from being out in the sunlight. Yep. And there's a whole other piece to that because, there is, melanin in our skin and melanin can break water and produce both hydrogen gas and oxygen gas.

And those gases then again get moved towards, your mitochondria where they can produce more metabolic water. So there is that whole other side of sunlight besides the infrared light, just the exposure of it.

So and UVA light is important to activate the pump. See gene. And that's to propio Milano Gene that gives rise to a variety of different forms of Milano stimulating hormone.

And one of those gives rise to the production of your melanin in the skin. And, you you need certain cofactors for that, for that all to work with this melanin that's gives us a beautiful bronze color.

If all have those of us with darker skin already have a much darker. I'm a Dutch, so it's blond and white, blue eyes and white skin, but I turn this golden color.

But that that melanin produces energy for us. And melanin is is a fascinating, substance. You know, we have it in our eyes, it's in our retina. And, in fact, our retinol is the, most energy, using intense tissue in the entire body it needs the most, but it doesn't have a blood supply.

So how does it produce its energy? It's through sunlight in and the layer, it's inverted. And the the the bottom three layer is there is. That's where the combs and the rods are in.

There is no blood supply, but there is a layer of melanin. It's this dark pigment and sunlight. We need it in our eyes, which is why sunglasses are not a good idea.

We need this light coming in to produce, this energy for us.

Sunlight, melanin, and practical steps for health

And you can think of, age related macular degeneration as a lack of sunlight because you want to see. So your body is compensating and creating a blood supply to the retina.

And that is what age related macular degeneration is. So, it's all really quite amazing. And of course, if your tissues, if your body is high in deuterium, you aren't going to produce very efficiently those gases in your eyes, in your melanin, in your retina.

So it's all related. But deuterium is not all that I want to know. The team is required. And you can think of it as a, of great importance for structural proteins.

So for collagen and for bone, it gives it strength. Right. But we don't want it in the moving proteins. That's where things go wrong. So yeah. And is there a way to.

Yeah. Because if it's needed in one location not needed another location, there has to be some kind of intelligence where it gets shuttled in the right location and not being in the wrong location, which is, and in the mitochondria or, you know, in the bloodstream and so forth.

So, yeah, are there is there like a decision making process to determine where the deterrent is going? And likely there is. We, really need to, identify the exact mechanisms, but, the, the theories are in the moment that all I summarizes are those, key enzyme terms that make sure that deuterium doesn't get in the wrong tissues.

So, you know, there's three right in the process of glycolysis, for instance. And so that's all there to make sure that literally every carbohydrate that comes in, every sugar has broken down, every possible deuterium that's attached to one of those, molecules of sugar gets removed and gets replaced by a hydrogen that is in the, cytoplasm.

So, so this is where the where the deuterium depleted water is so useful, you actually lower the ratio of deuterium to hydrogen within the cytoplasm. And if you do that then the chances that that's carbohydrate that came in with the deuterium will be exchanged with a hydrogen and not a deuterium is much greater.

And so that's that other mechanism. But ultimately the really the greatest, way to lower deuterium from coming in is by addressing your food. That is the key piece.

It cannot do it without it. And that's what this, Adrien Boulanger showed by his accomplishment in the seventh time he adopted a complete ketogenic diet, meaning 10%, max of carbohydrates, I think it was 60% of fats and then 30% of protein.

And he just that is what he had. And butter nuts, some awful keto and, you know, these kinds of fats. And and he did it. He made it. So yeah to bring it all back that that is ultimately and this paper shows is so beautifully in such great detail.

So I encourage everyone to download it, look at it, explore. Do you do know me exactly. Learn more because it's so, so fundamental to health. And just to kind of reiterate for, you know, in regards to cancer, again, you know, cancer we know is a metabolic dysfunction.

And that's why this is so important. You know, if we can maximize the amount of energy that's produced within a cell, then it is less likely to turn into an altered way of producing energy.

The fermentation process, which is very inefficient, that creates and byproduct that are cancer producing in themselves. So if we can then optimize, you know, this process within the cell, then the the mitochondria will be healthy.

Mitochondria will help to repair the the dysfunctional genetic material. There be less oncogene. So be turned on there be less uncle suppressor genes.

I'll be turned off you know. So it impacts that whole cascade. And and that's why what we're talking about is so important. and so like you mentioned this gentleman climbing Mount Everest.

Yeah. This is what we are wanting to do within ourselves to be able to to be that efficient, you know, that we can, we, you know, the cancer cells, you know, die and the healthy cells stay healthy.

That's correct. And just a piece about the genes and oncogenes and so forth. You know, you don't need to have any mutations at all for anything to go wrong.

Access deuterium causes the aberrant expression of genetics and genes in you because, you know, you as we always create new DNA and this copying process is going on, if we have access deuterium, the backbone of DNA is a ribose sugar.

And if at certain positions, there is a greater incidence of the deuteron binding to this ribose sugar, you will change the DNA. You will and you will change the expression of it.

So that's what I'm saying. You actually have control over this to some extent. If you manage this you can change how these genes expressed. So you know that that's hopefully empowering to people that your genes is not your, destination.

It's not it doesn't have to go that way. So, I really, yeah, want to enforce that point. It's not your genes, it's metabolism. And that that's really important.

I appreciate that, thank you. And, how so? For an individual, for listener out there, you know, what are the action steps that they should take? I mean, we're talking about, you know, diet it sounds like ketogenic good quality fats.

And then also if they have the ability then to get deuterium depleted water. what what should that whole process look like for an individual. So I think you change what you can where you can based on your, your, your life.

So depending on your particular, medical challenge that you may be experiencing, you need to go as far as you possibly then do to reverse and or change course of wherever you're going.

so, I mean, I think it comes down to food number one and, second is, is light and gases making sure you are able to breathe, and get the oxygen in that you need, because ultimately that is the rate limiting factor, as you can see, even climbing the mountain.

and this is what Mr. Ballard did, he he produced his own oxygen. He recycled it. You know, we can overcome these

metabolic issues. So that's where the constant focus has to be.

You may need to move to another place to be in the country to, you know, get access to great quality food and just have less of it, but having more nutrient dense and really concentrate on that, you know, shift, shift where you can do it in a timely fashion, do it in a pace you can keep up with and learn, learn more every day about this and take charge.

And and let's say they bring in deteriorate depleted water. In addition to these steps that you just mentioned. what what should that look like? I mean, it is they're kind of a step by step process.

Or do you go just for the lowest deuterium depleted water so you can immediately I mean, what what what does that process look like. And are there any caveats or dangers or symptoms such as you watch out for.

Yeah, they actually are. So the the team depleted water is being sold is very low in its concentration. So it would be at either 5,10, 18,25 pm parts per million. That's very low.

So there are some papers out there that have described. If you go below 50 parts per million, you can experience certain symptoms of what they call isotopic shock.

So yes, you want to be mindful these these water should not be drank straight up. You want to dilute now you dilute it according to your disease presentation.

Your amount of water. You consume your weight. Right. So those are all factors that are taking consideration when I decide, okay, maybe you want to start here.

You also want to be mindful of those individuals that are very sensitive, because some will actually experience somewhat of, detoxing type of a reaction.

They might not feel great. Not everyone most people feel great, but there are a few here and there that, you know, they're just super sensitive and they immediately feel that shift.

And that can be as simple as, oh, I got a vertigo attack. You know, I didn't have that before, so now I have that again. Or my, heart rate is different or I feel a little bit lightheaded.

Those types of feelings can be experienced. So go slow. You know, there's no need to rush it. Dropping down from a normal of 150 that you've been consuming pretty much your whole life to one, 25 or 200 is already extremely significant, you know?

So, take it slow. I love it, I love great. Well, and, Dr. Petra, where can they go? You mentioned that you have a website where a lot of information is, is is that where they can learn a lot about this?

Well, where where is that at? So my website is called just drpetrad.com My last name Davelaar and drpetrad.com That's it. And I have added another page.

I have some presentations I wrote to articles that were published last year in the Townsend Newsletter, which is great. One about glutamine that I love and explore.

I encourage you all to explore it. So it's it's one. One for all. Dr. Petra, thank you so much. It's been wonderful. Thank you so much.