The Grain Brain Whole Life Plan: Boost Brain Performance, Lose Weight, and Achieve Optimal Health:
A Special Interview With Dr. David Perlmutter
By Dr. Joseph Mercola

JM: Dr. Joseph Mercola
DP: Dr. David Perlmutter

JM: Alzheimer’s: a massively increasing epidemic. Diet is one of the foundational cores to not only treat, but prevent this disease. Hi, this is Dr. Mercola, helping you take control of your health. Today we are joined by Dr. David Perlmutter, who is the author of a new New York Times best-selling book that addresses this topic.


DP: As always, I’m delighted to be here.

JM: We share the same passion. You’re focused more on the brain health, which is great. I take a little broader perspective. What I neglected to mention in the intro is you’re a board-certified neurologist, and still practicing. You still see patients.

DP: Well actually right now, I’m on sabbatical. I wanted to get back to your intro. Those words were actually very, very impactful. The fact that it is an epidemic, Alzheimer’s, and that it can be reduced in terms of risk by our dietary choices, and even the fact that our dietary choices can have a huge effect on the time course of that disease, that’s a place where we don’t have any drugs. There is no meaningful treatment. As you and I have this conversation here in 2017, there is no meaningful treatment for that disease that is affecting 5.4 million Americans.

JM: Conventional treatments. That’s for sure.

DP: That’s right. People go to their neurologists. They end up with a prescription for Namenda or Aricept and who knows what. The truth of the matter is those drugs are virtually ineffective. You’re darn right that diet matters a whole heck of a lot. Gee, I’d like to spend some time talking about the fact that this horrible disease that claimed my dad and so many others is a preventable situation. It doesn’t have to be.

JM: Because many people focus on what to do with breast cancer and the genetic predisposition to this. If you can spend a moment on that and why it’s not so much the genes that you inherited from your parents, but it’s the epigenetic expression of those genes and the control of them through your diet and other variables that we’re going to discuss later in the interview.
DP: That’s for sure. To be clear, no one inherited Alzheimer’s. No one inherits that disease. Some of us who have relatives who had Alzheimer’s or have Alzheimer’s are at increased risk. We certainly know that there are some genes, the Apolipoprotein E (ApoE) 3, 2 and 4 genes that are playing a role in carrying the ApoE-4 allele. It does increase a person’s risk. But this is not a determinant that you will or won’t get the disease. It does indicate that you have a higher risk for that disease. But the beauty of what we are talking about is you can offset that risk. You can change your destiny.

Again, I admit that my risk for Alzheimer’s has increased because I have a primary relative, a father, who had that disease. I’m at increased risk. You can be sure I’m doing everything I can so that’s not the direction I go. We’ll certainly talk about what those lifestyle changes are all about.

JM: Let’s discuss that now because you have obviously a personal interest in this, with your dad coming down with it and as a neurologist treating many patients with this. From that vantage point and perspective, what’s your take as to the biggest contributing risk factors?

DP: Let me preface it by saying if you live to be age 85, which is the largest growing segment of our population, your risk is 50-50. You don’t have to be like me and carry the gene like 20 percent of Americans. I don’t know if I have that gene or not, but 20 percent of Americans at least do. But even if you don’t, your risk is 50-50 even if you don’t. What do you do? You’ve got to focus on a diet that powers the brain and the body with fat, not carbs.

You have a new book coming out. I do recall I reviewed that with you. It’s centrally focused on this notion of the body loves to burn fat. It’s efficient. It reduces production of free radicals. It reduces inflammation. Those are mechanisms that are absolutely underpinning the diseases we call Alzheimer’s, Parkinson’s and coronary artery disease, diabetes and cancer as well. It’s a broad net that is thrown when we change our diet and finally get rid of the sugar and this bombardment of our physiology with carbs, the likes of which our gene array has never seen before in our 2 million years.

You mentioned the word a moment ago, epigenetics, meaning that our lifestyle choices are influencing, moment to moment, the expression of our DNA. That’s a pretty heavy thought. It’s also very, very empowering – the notion that we can change the expression of our life code, our DNA, by making certain choices in our lifestyle, like our dietary choices, like choosing to exercise, like making sure we get adequate sleep, reducing stress and have good social relationships. All of these, our epigenetic factors, change the expression of our DNA, and can change our destiny even as it relates to Alzheimer’s risk.

JM: Yes, indeed. You mentioned my book, which is Fat for Fuel, really focuses on that quite a bit. The point I’d like to have you discuss is that the issue is burning fat for fuel, because you’re creating ketones. Ketones burn far more efficiently. They generate less reactive oxygen species, less free radical damage. But then you mentioned that we have to cut down the carbs.

The common misinterpretation of that recommendation that I find, and personally have experienced, is that carbs are evil. You can’t have carbs. It’s not that carbs are evil. It’s that burning carbs as your primary fuel is evil. In order to achieve that transition, you need to
radically reduce your carbs, but then that doesn’t mean that you do that the rest of your life. In fact if you do and if you go on this nutritional ketosis for years, I think you’re headed for very serious trouble.

What we’ve incorporated in the book is this feast-famine cycling. Interestingly, if your insulin level goes too low, you actually increase the production of glucose by your liver. If that isn’t suppressed, you have high blood sugar levels even if you’re eating virtually no carbohydrates from you diet.

**DP:** Here’s the part that I think [is] the flaw in this overwriting recommendation to go into full-blown ketosis all the time. Where people crash and burn has to do with their deprivation of carbs, meaning fiber-rich foods, those foods that are prebiotic, rich in fiber to nurture the microbiome, the gut bacteria. When you go completely off of carbs, you’re eliminating those as well. That is exactly what you don’t want to do. That’s what leads people to have this crisis where they absolutely do crash and burn.

It’s important that those carbohydrates remain part of the program, especially those fiber-rich foods that are rich in prebiotic fiber: jicama, chicory root, dandelion greens, garlic, onions, and leeks. As well as using a supplemental prebiotic fiber from a health food store, knowing that we’re not going to be always eating a lot of prebiotic fiber day to day. I think that is a big player in terms of why people have such an issue when they go into full-blown ketosis.

You know, it’s more than just the utility of powering our cells with fat that is the beauty of this type of diet. You mentioned the production of these ketone bodies. When you do cut your carbs and sugars, and you add in adequate amounts of healthy fat, your body does produce ketones, one of which is called beta hydroxybutyrate. It turns out that being not just an ideal fuel source for your cells to burn, but beta hydroxybutyrate is an epigenetic player. It actually has some huge effects on the expression of our DNA.

To be complex about it, it’s what we call a histone deacetylase inhibitor. I don’t mean to bore your audience with details. But suffice it to say that when you’re in mild ketosis and your body is availing itself now of this chemical beta hydroxybutyrate, it is stimulating changes in the expression of your DNA, which is positive, reducing inflammation, increasing detoxification pathways, increasing your body’s antioxidant production.

In addition, another player with respect to beta hydroxybutyrate is that it stimulates specific receptors on cells called g-proteins. When these receptors are tagged by this beta hydroxybutyrate that you’re producing now that you’re in mild ketosis, it also helps to reduce the activation of pathways that lead to inflammation.

Now, why am I so focused on inflammation? Because inflammation is the cornerstone of just about every bad thing from a degenerative disease perspective that you don’t want to get, including Alzheimer’s, coronary artery disease, diabetes and cancer. It’s far beyond just the fact that we’re powering our cells with fat, which is a good thing. We’re actually changing our metabolism dramatically and really paving the way for health.
JM: Yes, indeed. I just want to finish the thought that I mentioned earlier with respect to the cycling. Because even though you’re on that certain level of carbohydrates in the ones that you had mentioned as a source, if you do that continuously and you don’t change it up, what you’ll find is the insulin levels go low and that you actually have this rise of glucose in your blood sugar.

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That’s actually highly counterproductive. If you pulse with these carbohydrates, 100 or 150 grams of carbohydrates, the amazing thing is that your ketone levels increase dramatically and your blood sugar drops. It’s not that you do that every day, but you do it periodically.

DP: You bring up some excellent points because, number one, that does emulate what our Paleolithic ancestors would have done. They did come into contact with carbohydrates from time to time, especially in the late summer and early fall when fruit would ripen. But beyond that, we have to explore a little bit the role of insulin, which is certainly well beyond just balancing our blood sugar. We know that insulin, of course, is required for lipogenesis, for the production of fat, which isn’t necessarily a bad thing. But beyond that, recognize that we need insulin as well for the production of protein.

When people are highly keto and drive their insulin levels 24/7 down to really low levels, they don’t have adequate levels of insulin to actually manufacture protein. They become almost cachectic or they lose their muscle mass and they start wasting. Your point is really well-taken. I would encourage all of the viewers today to keep your eye out for Dr. Mercola’s book. Because I’ve already read it and it goes through this scenario exactly. In terms of implementing, it’s not that difficult.

JM: Yeah. That’s a key point. We just want to save people the grief from making the mistakes that we did. I certainly made this, just not appreciating or understanding that to do this long-term is just not a wise strategy. Thank you for reinforcing that point. But let’s go back to Grain Brain Whole Life Plan. You’ve written a previous New York Times best-seller. How many do you have now? Three or four?

DP: Four.

JM: Great. That’s a good job. Grain Brain and Brain Maker. How does this book differ from those?

DP: Grain Brain, Brain Maker and then the Grain Brain Cookbook, not so much. But the first two books – the first book, Grain Brain, was about carbs and gluten. Brain Maker, again, focused on the microbiome. I tend to look back upon those books as explaining the “Why?” Why does this stuff make sense? Why are our gut bacteria so important for health, on and on.

The new book, The Whole Life Plan, is more about “How.” Meaning now that we understand the damaging role of sugar, for example, and the importance of the microbiome, how do we now leverage that information and create a life plan so that we can be happy day to day? We don’t have to fret over our food choices. What does exercise mean? Why is sleep so darn important
and why is gratitude even so important for maintaining and really enhancing health? It’s really now taken from my perspective.

I wrote that book as a 60-year-old from a very first-person perspective about what it’s like for me to remain healthy in spite of my genetic predisposition, and how I do things day to day. I created some exercise videos that go along with the book that are on the website. It really is much more of a personal experience and journey that I’ve gone through because you and I know that it’s not always perfectly easy. We do these webinars. We talk about all this stuff. But in the real world, when you travel, for example, it’s not always easy to eat right and make those choices. You have to bring food along.

I just think it’s really important to not place myself on the other side of all this, but to be part of the movement here, and realize that these are sometimes challenging issues and how did I go about solving them. I’m really very transparent in the book. I even talk about the role of stress.

How one morning on my way to get my teeth cleaned, I got a text message from a wife of a friend saying come to the emergency room quickly. I went and my closest friend – he married my wife and me, he’s my daughter’s godfather – had a massive intracerebral bleed and was brain dead. How I had to work with the family over the next 12 hours to finally convince everybody who have flown in that it was time to take him off of life support and how that affected me the next day.

The following day, his wife had called and asked us to gather up photographs and videos of Uncle Mike. We were in a band together. We did a benefit concert. I was watching this video and suddenly I couldn’t catch my breath. I went on to the couch and laid down. My wife said, “You don’t look good. I’m going to take you to the hospital.” That’s about the worst thing to say to me. I will never go to the hospital. I said to her, “No. You’re not. You better call 911.” That’s how bad I felt, which from my lips, would be something you wouldn’t expect.

An hour later, I was in an intensive care unit with a very high heart rate of 180 in full blown arterial fibrillation that we couldn’t break with medication. They were charging up the paddles to shock my heart. I was a sick puppy.

**JM:** How long ago was this?

**DP:** This was in March of 2015. No, 2016. Actually February.

**JM:** About a year ago?

**DP:** Later that evening, everyone had left and I was having a conversation with the nurse. He was telling me about his life. I felt this overwhelming gratitude for his care of me. A feeling of love came over me for this perfect stranger. When that happened, at that exact moment, my heart converted back to a sinus rhythm, normal rhythm, but the rate was still pretty fast. Through the course of the night, my rate came down. My normal heart rate is very slow because I’m a runner. I cautioned the nursing staff to be careful with the medication.
I opened my eyes at 4 o’clock in the morning and looked at the monitor. I had flat lined. I had no heartbeat at all. No alarms were going off. There was no noise. I opened my eyes and closed my eyes. I thought that maybe I was dreaming. I wasn’t dreaming. I thought, “Well, I guess what happens now. But before whatever happens now, let me just be sure. Maybe one of my heart monitor leads came off.” I traced all the leads and one of them, sure enough, had popped off my chest. I popped it back on and it was beating fine.

By the morning time, I had been taken off the medicines, all the IVs out. I was doing yoga in the ICU when the cardiologist came in and said, “You want to go home?” I said, “You’re darn right.” To wrap it up, I then had a full cardiac work up with the stress test. I passed with flying colors. My heart was fine. But it was a very good experience for me to learn the power of stress and the power of gratitude and love in this world and what it did to me. Flat lining, or at least thinking that you’re flat lining, is a pretty sobering experience, as you could imagine. I write about it in the book. I write about what that’s like, the importance of gratitude and just being so grateful for all that we have these days.

JM: Sure. Thank you for sharing that. My suspicion is, though, that it was not likely the lack of gratitude or love in your life that led to that. But maybe it was from your perspective. It’s interesting to hear. But there might have been some underlying mineral abnormality or pathway that got disrupted. Do you have any impression as to what that might be to really address it?

DP: I don’t. All my electrolytes were normal. My serum magnesium, not the best test in the world, but that was normal as well. It’s the first thing I asked them to check. Gee whiz, I was overwhelmed and I still am by the loss of this person. My wife said something very interesting, that at that moment when my heart converted back to normal rhythm at about 9 o’clock that evening, she said that that’s when Mike was ready to let go. Maybe that was what exactly happened. I don’t know. Hey, I ran 4 miles before this interview this morning. I feel great. At the end of the day, I’m grateful to have had that experience. I think it’s good for me.

JM: Alright. You mentioned exercise a few times and the fact that you’re a runner. I used to be a runner. I ran for 43 years before I stopped. I just got tired of it.

DP: That’s like Forrest Gump. One day, I just quit.

JM: I just quit. I just said, “I do not like this anymore. I’m stopping.” I’m very glad I did.

DP: Did you use music? Did you have an iPod or something?

JM: Yeah, I did. I did initially but then I didn’t. I would listen primarily to audio and lectures, and all the different audio media that you could use to educate yourself. That’s what I would do and I would get these massive insights and epiphanies when I would run, usually about 20 minutes in.

DP: That’s when you write your books.
JM: Yeah. I miss that, but I wouldn’t trade it for what I’m doing now. I’m wondering, with respect to exercise, are there specific ones for brain health to increase the brain-derived neurotropic factor (BDNF), which I guess is increased generically, but do you have specific brain exercises that you recommend?

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DP: For sure. Just to expand about what you just said, because I think it’s really important for all the viewers to get what Dr. Mercola just said. That is that we can change our genetic expression with exercise and turn on the gene pathway that makes a specific hormone called brain-derived neurotropic factor, or BDNF, that does nothing short of help you grow a new brain. It leads to stem cell therapy in your brain’s memory center, your hippocampus, and also helps brain cells connect to each other, which we call neuroplasticity.

It turns out that any aerobic exercise, especially ones that you like, will do this. This was just published several months ago, a new study done by Dr. Kirk Eriksen at UCLA. The conclusion was that regular participants in aerobic exercise, whatever their age, have overall a reduced risk of Alzheimer’s by about 50 percent. That’s an important statement. They can garden, they can walk, they can swim, bike, whatever it is that gets their heart rate up is what they mentioned. They demonstrated these profound changes on brain scans of these individuals growing/having more grey matter based upon raising their BDNF levels by doing exercise.

We know that, for example, the herb or spice turmeric can do it, raise BDNF. We know that DHA, the omega-3, raises BDNF. There’s a really exciting new research that shows that whole fruit coffee concentrate or whole coffee fruit concentrate is one of the most powerful ways of raising BDNF.

When you pick a coffee bean, it’s not actually the bean you’re picking. It’s the berry. The bean is the center part. The seed is what you make your coffee out of. But the rest of the fruit then undergoes an extraction process and makes this whole coffee fruit concentrate that now has been shown to dramatically raise BDNF levels. You’ll be able to buy that, I suspect, in the health food store pretty soon.

JM: It’s not available right now?

DP: April 2017 from what I understand.

JM: Wow. It’s actually the coffee cherries is what I think they call them.

DP: It’s called the coffee cherry. Right. The beans are not what are growing on the tree. Until now, that was thrown away. It’s terrific that this is going to be yet another resource. But again, I want to emphasize that the best thing you can do if you want to raise BDNF levels and therefore grow new brain cells, is to do something that’s very, very expensive. That is to go out and buy a new pair of sneakers. Then you’ll become active. Whatever it is you want to do – you want to salsa dance, you want to work in the garden – just become active. That turns on your body’s production of BDNF. It helps you grow new brain cells.
A wonderful study in JAMA Neurology last year correlated the highest levels of BDNF with dramatic risk reduction for Alzheimer’s disease. You want to do everything you can to change your gene expression – exercise. That will, in my opinion, reduce your risk dramatically for Alzheimer’s disease. That’s been my opinion for the past four books, but now that’s been validated by terrific research.

**JM:** That’s great. The other benefit of exercise, not only with the BDNF and increasing neuroplasticity, but it increases another metabolic signal, peroxisome proliferator-activated receptor gamma coactivator (PGC-1α), which is the most important signal to increase mitochondrial biogenesis. Since the brain is one of the most mitochondrially dense organs, it’s a useful strategy. Maybe you can comment on that.

**DP:** It is. The pathway that you mentioned, the PGC-1α pathway, is one that regulates both mitochondrial activity and mitochondrial replication or mitochondrial genesis. The reason that’s so very, very important is, as mentioned, the brain is a very dense area as it relates to mitochondria because of its demand for energy.

It turns out that mitochondria do more than just help us produce energy and power our cells. Mitochondria are actually involved in determining which cell lives or dies. As I’ve said, wield the sword of Damocles. They say whether that brain cell will live or die. This is mitochondrial therapy. We’re now looking upon Alzheimer’s and Parkinson’s as acquired mitochondriopathies or mitochondrial diseases that can be acquired by exposure to toxins, like we see with Parkinson’s, or just direct toxic effects on mitochondria based upon diet. For example, a high sugar diet is toxic to mitochondria.

Here is yet a third benefit to aerobic exercise that has just been published. It now looks as if those individuals who engage in aerobic exercise have a wider diversity of gut bacteria. The more exercise you do, the more diverse are the organisms that live in your gut. That correlates with better health, reduced inflammation and a more balanced immune system. I think we’ve given out three very powerful reasons that people need to engage in aerobics.

**JM:** Yes. Those are things that can be done and adopted by pretty much anyone at relatively little to no expense, other than a time commitment. I’m wondering what your thoughts are in some other more radical extremes and certainly far more expensive interventions that require medical therapeutics. That would be something like stem cells for the use of Alzheimer’s, and what your experience or perspective is on that. Do you think there’s any value in it now or that there may be in the near future with the development of technologies?

**DP:** That’s an excellent question. Truthfully, everything you and I have been talking about for the past 10 minutes has revolved around stem cell therapy. When we turn on the growth of our new brain cells by exercise and increasing BDNF, that is increasing the growth of stem cells exactly where they need to be in the brain’s memory center. There are companies that are doing stem cell therapy for neurodegenerative conditions around the globe, several that I’m aware of and I’m following quite closely. I’ve had patients over the years avail themselves, at least with Parkinson’s, of various types of stem cell therapy. My sense is overall that there was indeed some improvement.
The real challenge with stem cell therapy is getting those cells to where they need to be and then hoping that they then differentiate into the type of cells that are needed. What we see with the endogenous stem cell therapy, in other words, BDNF brought on by exercise, coffee fruit, turmeric etc., is that that’s exactly what happens. Those stem cells grow where they are needed. They develop into fully functional brain cells and they migrate to areas where they are needed as well.

Do I think the future will hold promise for ways of utilizing interventional stem cell therapy? I do. Based upon the level of science, I think that’s going into it. I think it will prove effective. Again, as we have this conversation, one of the blogs I recently wrote was stem cell therapy. You don’t need a doctor’s prescription. Get out and exercise.

**JM:** Yes. The key words there are “get out.” Rather than going to a gym, do it outside. One of the benefits of doing that outside is you get sunlight exposure.

I’d like to take a little tangent now and ask you a question about light exposure on the brain, because it’s my understanding that that can also be useful. I’ve interviewed a number of investigators before. I’ve been using infrared light, specifically about 810 or 830 nanometers, to help improve Alzheimer’s disease.

These investigators were relatively clueless about what we both are enamored with in this lifestyle changes and optimizing the diet and burning fat as your primary fuel. They did this without any of that, but are getting improvements. I’m wondering if you have any experience with that and what the potential powerful synergies could be.

**DP:** I’ll get there in just a minute. Let me go back to just something that came to mind. You said that these researchers were not involved in looking at ketogenic diet.

**JM:** No. They’re clueless there.

**DP:** It brings to mind the notion that the reversal of Alzheimer’s, which now has happened with the work of Dr. Dale Bredesen out at UCLA, happened by leveraging 36 different points. In other words, increasing exercise, ketogenic diet and maximizing vitamin D levels, working with hormones, detoxification, and eliminating gluten. Thirty-six different parameters were utilized in this program.

In his original series back in 2014, published in the journal *Aging*, he reversed Alzheimer’s in 9 of 10 patients. Some will be critical, saying that 10 patients is hardly a large population. [That’s] true. But getting 10 people to be involved in this 36-point program I think is challenging as well.

To get back to the effect of light, I recently received a device that delivers light through the eardrums, through the tympanic membrane. At some point, it’s indicative that it’s getting to the brain. The claims that were made that I researched based upon that were not of the caliber that I would be able to say this is a device that I think is going to have huge promise. I think it’s an area that begets research. Gosh. I have the device. I’ve actually tried it a couple of times. It's
funny that you’ve mentioned that. But you also mentioned just light in general. I think you made a comment about getting outside for vitamin D. We really have to emphasize.

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**JM:** Infrared, too. There’s not only UVB, but there’s red and near-infrared, which perhaps is equally clinically important.

**DP:** Correct. I think it is a big call for people to get outside. Everything that we’re talking about, when you think about it, is really trying to emulate what our environment has been like for 99.6 percent of the time that we’ve been on this planet. We were outside. We were exposed to dirt. We ate a lot of fiber-rich foods. We ate some animal protein. We didn’t have much in the way of carbohydrates and certainly didn’t have sugar and gluten. It worked for 2 million years.

**JM:** I have to disagree with you there, though. I have to disagree with you. It’s not 99.6. It’s probably 99.99 percent.

**DP:** I think it really depends on when you claim that humans arose. I think that’s a little bit ambiguous. Anyway, that’s what we’re trying to do, because we rounded out these genes. We perfected the genes. We cultivated the genome that we have to be responsive to that type of environment. But now suddenly, we are challenging that genome with a diet that’s high in sugar with toxins, the like of which has never been seen before. People are wondering why suddenly there’s such a surge in cancer, obesity, diabetes and degenerative conditions.

It makes perfect sense. There’s no mystery here. It’s not because our pharmaceutical companies aren’t smart enough to develop drugs. They’re never going to be able to keep up, especially as they cling to this mentality of one drug fits one disease, the magic bullet idea. It isn’t going to work. You know what your message is, what my message is, “Hey. Take a step back here. Why don’t we do our best to stay healthy in the first place? Then we don’t need to rely on these very expensive modalities that basically don’t work.”

**JM:** Okay. Another modality that we know works that I don’t believe you’ve mentioned in the 36 points – but I’m sure it was there – is sleep. You’ve talked about it earlier. Why don’t you elaborate on some of the clinical pearls you’ve acquired over your practice and what you believe is some of the most important tips are to optimize that to maximize its benefits on Alzheimer’s disease treatment and prevention?

**DP:** We look at the correlative studies that are really quite profound in showing that interrupted sleep, dropping out of restorative sleep, and even full-blown sleep apnea have strong correlations to risk for Alzheimer’s disease. There are multiple reasons for that. We know that, for example, if you measure inflammatory markers, like C-reactive protein and others, they correlate quite nicely to tumor necrosis factor alpha, with the degree of abnormality of a person’s sleep.

For example, I know I snore – or my wife says I snore, how would I know? Knowing that I’m at risk for Alzheimer’s, I parked myself at a sleep laboratory and had a sleep study. I’ll send you a picture of what I looked like in that event. I had some interruption of sleep. I didn’t have a full-blown apnea. But if I did, then I would want to do everything I could to fix that. In other words,
what does that mean? Would it be surgical? Would it be using CPAP? Would it be pillars? Would it have been simply Breathe Right strips? I don’t know.

But that said, we recognize that the brain undergoes some fundamental housekeeping during the course of sleeping. It’s not like everything shuts down. That’s when the brain tidies up. That’s when we are activating what’s called the brain’s glympathic system to help clear debris.

A new research that was actually just published about three weeks ago indicates that during sleep, the brain may undergo what’s called synaptic pruning. What that means is we spend our whole day making new connections between brain cells, but we rely upon the fact that during sleep, we reduce some of those connections because they may not be necessary. We don’t overrun the hard drive here with all these connections that are not necessarily important for us.

I talk about, in my new book, all types of ideas that people can pursue to improve their sleep. I have to say that one of the biggest issues, and I’m guilty of it or have been in the past when my wife bumped me on the head, is watching a TV show before you go to sleep. It really hasn’t affected me but it sure has kept my wife up. We’ve tested this time and time again, even reading from her iPad. Because of the light and the inhibition of melatonin, probably I’d assume that’s the mechanism – is really powerful in terms of interrupting sleep.

So many people are watching the 11 o’clock news, which these days are enough to keep anybody awake, then wondering why they can’t sleep. You’ve got to sleep and you’ve got to lots and lots of sleep. Again, it’s trying to emulate the fact that we would go to sleep when the sun went down and wake up when the sun came up. It’s desperately important. It’s a very important lifestyle choice right there with eating and exercise.

**JM:** Yeah. I think you’ve mentioned people watching the 11 o’clock news. Not only is the content of the news disturbing and distressing, but if they’re watching the news at 11 o’clock, they’re doing something seriously wrong with their lifestyle because they should have been sleeping for the last two hours.

**DP:** You know as well as I do. People tell us that. They explain. You say to yourself what part of the message didn’t you get? We have to lovingly approach these individuals and say, “This is really not what we need to be doing moving forward.” One would wonder about the wisdom of watching the news at all these days if you want to bring goodness and positivity into your life. The brain molds itself based upon the input. You make, through neuroplasticity, connections in your brain that ultimately can become indelible based upon what you are influenced by and you have a choice to spend your time reading a book by Anne Morrow Lindbergh or by watching the news.

**JM:** Sure.

**DP:** On the one hand, something’s very positive and lets you see the world – yes – through rose-colored glasses. There’s nothing wrong with that. On the other hand, if you bombard yourself with all the stuff going on around you, the world does look like a very dark and scary place. That raises your cortisol level. That’s toxic to your brain’s memory center. That sets the stage.
JM: Yes, indeed. You mentioned rose-colored glasses. I put on my orange-colored glasses as soon as the sun goes down, which mitigates any exposure to the screens. The issue, as you’ve mentioned, is the suppression of melatonin. That’s one of them. But the blue light is just particularly pernicious if it’s not balanced with red light. But it’s even more so at night. When the sun goes down, I’ve always got my blue blockers on.

This is useful when you drive, too. If you think about it, you’re looking at these bright LED headlamps, which are not incandescent. They’re almost all LEDs. The blue light’s going right into the back of your retina, which is certainly not helping preserve your brain function.

DP: Yeah. I think you talked about blue light exposure in your last book, as I recall. But you’re right. Again, it really gets back to asking yourself, “What was our ancestor’s exposure like?” For sure, the amount of blue light and the amount of stimulating events that occurred in the evening that we’re experiencing now is unlike anything our ancestors would have experienced.

Having said that, why is it important? Again, it’s important from a genetic perspective because our ancestors’ genomes were honed to be perfectly responsive to that environment. We have that same genome today and we have to do our very best to emulate that environment and cater to it, get enough sleep, be physically active, and eat a diet that doesn’t have much sugar or carbs in it.

JM: Yeah. That’s why for the last 100 years, we’ve had electric lights. I think it’s fair to estimate 10,000 years would be reasonable and rational for human existence. If we’re 100 years out of 10,000, that’s like 99.99 percent [that] we’ve had only thermal light exposures at night, which is typically a fire or a candle.

DP: That’s broad spectrum.

JM: It’s not. It’s not a broad spectrum. It actually is very low in the blue. There’s virtually no blue in there.

DP: It’s a broad spectrum in relation to the LEDs.

JM: Yes. An analog light source and has the full range of wavelengths, but virtually no blue, which is really interesting. Which is why this exposure at night is so pernicious.

DP: The fact is that because it’s so low in blue, that was the effect in this of the campfire in allowing you to get a good sleep.

JM: That’s right. Absolutely.

DP: Because it’s low in blue.

JM: The embers in the campfire are about 1,200 degrees Kelvin. There’s virtually no blue in it. If you get the spectroscope out, it’s like there’s nothing.
But anyway, let’s get back to some of the other practical things that you can do that don’t really cost anything. We are both enamored with strategies that are cost-effective and can easily be applied by almost everyone. One of the ones that are not commonly mentioned is social interactions. I wonder if you could discuss that a bit.

DP: It’s true. When you look at the functional medicine matrix, that is actually included in terms of a valuable leverage point for remaining healthy – along with diet, along with exercise, along with detoxification – is social interaction.

We’ve often discussed these so-called blue zones around the world where people have better health and live longer. Most people have kind of focused on, “What do the people in the blue zones eat because I want to eat like they do?” There are multiple variables here in the blue zones that account for their longevity and excellent health. Food certainly is one thing. But these are people who are active, that are not using mechanized transportation as much, and who are very vigorous in terms of their social involvement. They have networks. These are societies in which the elderly, for example, are integrated and are valued and remain an active part of their communities.

This has, from a chemical perspective, [it has] a profound effect on lowering cortisol and raising other things in the body, for example like oxytocin, which happens to be called the love chemical, if you will. There are various changes that happen. I would suspect that in humans, there are probably even changes seen in the gut bacteria in the microbiome, comparing to those individuals who are socially involved versus those who are not. I would expect that the laboratory studies would confirm that. They’re probably even extant at this time.

Having said that, if that could segue back to the microbiome for just a moment, there was an interesting report that came out just two days ago. It was really quite profound because it demonstrated in the laboratory animal that is genetically mutated to make the beta-amyloid protein in the brain, that we see as a hallmark of Alzheimer’s is plaque in the brain. That there were changes in the level of the beta-amyloid that correlated with the changes in the gut bacteria. That when there were no gut bacteria, there was actually less of the beta-amyloid produced in this genetically modified rodent, as opposed to when there was a standard gut bacteria.

The reason I mentioned it is because there is a big push to develop medications that can rid the brain of beta-amyloid on the part of the pharmaceutical companies, because that would be beyond a blockbuster. That would be an astronomically important drug, they would think. But how intriguing it is that those of us who are focused on the gut bacteria are now recognizing that it may play a role from such a fundamental level, in terms of the production of amyloid protein in the brain. Whether amyloid protein in the brain is a good thing or a bad thing is really a part of another discussion.

JM: Excellent. You’ve written four New York Times best-sellers on the importance of avoiding grains to stay healthy, specifically for neurological health. I’ve written one, *The No-Grain Diet*, 13 years ago. Obviously, that sets our position. I was wondering if you could comment on your interview that you had of an individual that I recently interviewed also, which is John Douillard,
who wrote *Eat Wheat: A Scientific and Clinically-Proven Approach to Safely Bringing Wheat and Dairy Back Into Your Diet*, because it would seem that we would not want to interview someone with this perspective.

**DP:** I think I have his book right here, as a matter of fact. There you go. That’s John’s book. Let me first say that I have known John Douillard for about 25 years. In fact, he was involved in doing my Ayurvedic training with Deepak Chopra up in Lancaster, Pennsylvania so many years ago. I love the guy. He is a sweetheart. He’s dedicated to health. I interviewed him as well and I have to say that I don’t agree with him.

His contention is that our ancestors ate wheat at certain times of the year, and that most people can eat wheat and some people cannot. Again, I give him every benefit of the doubt, but I told him in the interview that I don’t agree with him in the nicest way I could.

The thing about wheat and other gluten-containing products, foods, grains, is that gluten, because of its content of another protein called gliadin, is threatening to the lining of the gut. Dr. Alessio Fasano’s research at Harvard has made it quite clear that gliadin, which is found in wheat, barley and rye, causes increased leakiness or permeability in the gut of all humans.

Respectfully to Dr. Douillard, the fact that some people can eat wheat with abandon and not have an issue, they may not know they’re having an issue. But I would tell you that if you measured their LPS antibodies after consuming wheat or other forms of gliadin, which is a marker of gut leakiness, you would find that those levels were elevated. The last thing in the world we need is permeability or leakiness of the gut. That’s a surefire way to imbalance the immune system and to augment inflammation in the body, which is certainly what we don’t want to do.

I want to tell you something very interesting as an observation. After I did that interview with Dr. Douillard, the comments on the interview were so positive. The most comments we’ve ever gotten that were so positive because of the fact that we disagreed but we were respectful of each other. We heard each other’s side. We didn’t interrupt. That certainly seems to be pretty unusual these days. I’ll leave it at that. Again, I think he’s a terrific guy. It’s fine to disagree. I disagree with some of the things I said 10 years ago, personally.

**JM:** If you don’t, there’s something wrong with you. You’re not growing.

**DP:** Yeah. There’s someone who wrote this scathing article about me in a magazine saying, “Perlmutter now tells us higher fat, and yet he just told us to lower our fat.” I told you to lower your fat; I think it was 18 years ago as it related to a study with respect to multiple sclerosis (MS). Did I change my position? You bet I did. Will I continue to change my position? Day by day. I tell my readers and viewers you better hope I change my position because that’s what science is all about. It’s about making progress and not being bogged down in the paradigm of today.

**JM:** Maybe you can comment on this study because I forgot the name of the approach, but there is this therapy that many people, I believe to this day, still follow for the treatment of MS. It
revolves around a low-fat diet. I think it was an issue published in *The Lancet*. I just can’t remember the name.

**DP:** It was a researcher in Scandinavia. The name will come to me in just a moment. I’ll get to it. Swank.

**JM:** That’s it. Yes. The Swank Diet.

**DP:** Swank Diet. He made some very interesting observations that the risk of MS seemed to be higher in people who were away from the coastline and weren’t eating as much brain fat in comparison to those who ate a lot of fish. Brilliant observation. If we look at DHA, which is what the population that had a less risk of MS was consuming, DHA is a very powerful anti-inflammatory. It works in a mechanism much like Celebrex and non-steroidals, and even aspirin, by reducing the formation of inflammatory chemicals that are called prostaglandins, mostly reducing the formation of the two-series prostaglandin. Those were observational studies. They popularized the Swank Diet. People continue to read his report to this day.

**JM:** Yeah. Sad because we know that’s just not the case. I just want to take a little tangent on DHA for a moment, which you mentioned. It’s an interesting fatty acid. It’s the only one that I’m aware of that when you eat it, unless you’re in a starvation mode, you’re not going to burn it for fuel. You’re going to actually integrate it to your cell membranes. It’s the only one that works like that. I believe it’s 60 percent of the mass of the brain by weight.

**DP:** It’s 50 percent of the fat of the brain.

**JM:** Fifty percent of the fat of the brain. That’s good. I got it mixed up.

**DP:** How cool that your body is able to triage this fat and specifically salvage it from being burned and incorporate it where it’s desperately needed into the cell membrane. That’s what DHA does from a structural perspective. Now, from an epigenetic perspective, DHA is, as I’ve mentioned earlier, a powerful upregulator of BDNM. It contributes to the growth of new brain cells.

How intriguing it is that the richest source in nature of DHA is human breastmilk, not anchovy oil or krill oil. In human breastmilk, it’s stimulating the growth of brain cells in that newborn. That is really very, very exciting. Beyond that, again, DHA acts as a COX-2 inhibitor. As such, it’s a powerful anti-inflammatory, acting in the same way that certain pharmaceuticals act.

**JM:** Yes, indeed. Obviously most of us watching this are not drinking breastmilk, so that’s not an option. We have to have the practical issue of where do we get it from? Of course we’ve both previously extensively discussed the importance of avoiding most commercial fish because they’re contaminated with pollutants like mercury and dioxins and PBDEs. That’s why you’d want the small fish. But interestingly, it’s better than fish oil or krill oil. There’s no question. It’s best to get it from small fish.
Maybe you can discuss this, because not only does it have the DHA and the other fatty acids that support it, but it has resolvents and protectants and, most likely, large amounts of minerals at very small amounts. I mean these micro trace minerals that are acquired in the ocean that we just don’t get almost anywhere else. We’re certainly not getting it in vegetables that are mostly grown in massively depleted soils.

DP: It really brings up the notion. I think you characterize this so beautifully, that is that in its natural state, these components are delivered along with other cofactors that enhance and really pave the way for their activity. We see that time and time again. Our pharmaceutical industry is looking at extracting the so-called active ingredient. As such, tries to focus just on one tiny part of a whole cascade of biochemical pathways because that’s what’s been studied. But when we eat foods in their natural state, you’re exactly right, we get the fiber from the carrot in addition to the beta-carotene and the selenium to augment thyroid function, for example, the fiber to work with the gut bacteria and improve its diversity. That’s why whole foods is really the way to go.

Oftentimes at the health food store, I watch as people order whatever the juice is of the day. It’s carrot plus celery plus broccoli. They drink the juice and I watch as they throw away all the fiber. Down in the garbage can it goes. People thought, “What do you want that for?” That is so important. That fiber is nurturing for your gut bacteria and does contain minerals as well. Not to mention the fact that now you’re having a nice 12-ounce glass of beautiful orange carrot juice rich in beta-carotene – of course it is – but there’s quite a bit of sugar that’s going to hit your system very, very quickly when you do that. Go and eat a carrot.

Even worse than that is this notion that if you can label something a smoothie, well then by gosh, it’s got to be healthy. It’s a smoothie after all. Despite the fact that it’s got half a cup of honey, a lot of yogurt with some sugar flavored fruit in there. You toss in an apple and some orange juice. But it’s a smoothie so it’s got to be good for you, and hey it’s organic.

JM: Yeah.

DP: A lot of calories, a lot of sugar. There’s no alchemy that happens when you put these things together.

JM: But rather than chewing a carrot, better to shred it and put it in your salad because you massively increase the surface area and the ability to absorb the nutrients and the fiber from that.

DP: You know what we’re doing is a lot of green papaya.


DP: It’s so easy to grow. They seed themselves. A whole side yard now has popped up with papaya trees. It’s breathtaking. They’re just loaded with papaya.

JM: Expand on that, the use of the green papaya. I don’t particularly enjoy the papayas. I’ve got several papaya trees. I never eat them. I give them all away. Why green papaya?
**DP:** I was kind of shying away from papaya myself because I was only eating it when it was ripe and it was really sweet. I was thinking, “Well, it’s probably quite a bit of sugar.” It was. But it was nice and orange. It had the carotenoids. But using papaya when it’s still green, now it’s large, but you cut it open and scoop out the inside before the starch has become sugar, so it’s bitter to eat. You put it in a food processor with some vinegar, olive oil, some spices and some carrots. It’s awesome.

**JM:** I’d have to consider that. Thank you.

**DP:** I don’t have to go. It’s in the backyard.

**JM:** It’s always best to grow your own food. Fifty to 60 percent of the food I eat I grow in my backyard or front yard. That’s the best way if you can do it.

You’re a busy man. You are the chairman of the upcoming annual symposium for the Institute for Functional Medicine, which I believe is going to be in Los Angeles this year in June. Can you tell us a little bit more about that? This is going to be focusing on brain disorders, which is probably why you’re the chair.

**DP:** It is. It’s about neuroplasticity allowing recovery from neural degenerative conditions. I think it should be neurogenesis and neuroplasticity. Some really wonderful people are going to be speaking there. As I mentioned, Dr. Dale Bredesen at UCLA and the Buck Institute, Dr. Michael Merzenich.

**JM:** I’ve interviewed him before.

**DP:** I had him at another brain symposium that I hosted down in your neck of the woods, in Fort Lauderdale. Dr. Rudolph Tanzi from Harvard, who is going to be talking about activity, lifestyle changes, and how they affect BDNF; Dr. Terry Wahls, I’m sure you know, who’s going to be talking about energetics, what we can do to upregulate mitochondrial function, mitochondrial genesis, the PGC-1α pathway that you mentioned earlier through diet and other lifestyle choices. Joe Pizzorno will be talking about toxicity and detoxing. A lot of really wonderful people who’ve been in this space for a long time finally coming together and really having a well-rounded presentation. I’m just so excited to be involved with that. I’ll do the opening keynote that I think’s going to give an overview about everybody else. But also, I will focus on the emerging science of the microbiome and how that relates to this so-called gut-brain connection.

**JM:** Absolutely. Thank you for all you’ve done. You’ve written four, not three, four New York Times Bestselling books on this topic that involves the elimination of grains. They all have the “Grain Brain” in their titles. The most recent one is *The Grain Brain Whole Life Plan*. If any of this information is interesting to you, then certainly that resource is available online at Amazon or any of your favorite bookstores.
DP: Thank you as well. I’m really very excited for your new book coming out. As I mentioned, fortunately I had the opportunity to read it ahead of time and I will tell all your viewers that this is going to be a homerun. Not just in terms of being successful, but a homerun for everyone who reads it. I want to close with a quote if I could.

JM: Sure.

DP: It’s from Ralph Aldo Emerson, because I think it really characterizes Dr. Mercola. That is, “Do not go where the path may lead. Go instead where there is no path and leave a trail.” That’s what you’ve been doing. All of us are outliers clearly. You have really left a trail for so many people to follow that isn’t where the path may lead. I think it’s so wonderful that you’ve done this all these years and you continue to do it, because it’s a beacon for all of us. You need to know how much you’re appreciated.

JM: Thank you for those kind words. I deeply appreciate those words. I’ve written 10. I think this is my 10th book. But this is the only one that I actually wanted to write. I was just driven out of sheer passion and a deep seated concern for those who are dying from cancer. As we both know, the same fundamental dietary intervention that treats cancer treats Alzheimer’s, and treats diabetes and obesity. It’s the same darn deal.

I thank you for your kind words and the great recommendations you made in editing it. The brilliance of this book, I think – I’m sort of being modest about it – is that it’s really one of the few peer-reviewed books. I went out to over two dozen experts like yourself who are world-class and really know this material. They corrected the mistakes that I had in the book, because how can one person put it all together? You’d need a collaboration to do it. I so greatly appreciate your collaboration with the book.

DP: I’m delighted and honored to help.

[END]