

A sunburst graphic with numerous thin, light gray lines radiating from a central point behind the text.

Healthy Moms Podcast

BY **Wellness Mama**[®]
simple answers for healthier families

Episode 107: Improve Your Brain to Avoid
Alzheimer's, Dementia & Memory Loss with Dr.
Perlmutter

Child: Welcome to my Mommy's podcast.

Katie: Hello, and welcome to the Healthy Moms Podcast. I'm Katie from wellnessmama.com, and I'm here today with someone who I have followed for a very long time. Dr. Perlmutter is a board-certified neurologist, a fellow of the American College of Nutrition and four-time New York Times bestselling author including his most popular book, "Grain Brain: The Surprising Truth About Wheat, Carbs, and Sugar," you've probably heard of it. He's published extensively in peer-reviewed journals, he's been interviewed by everyone from Larry King, to Oprah, to Dr. Oz and many others. And he's the recipient of the Linus Pauling Award for his innovative approaches to neurological disorders. He also has an amazing blog and website with a ton of great resources and we're gonna delve into a lot of his favorite topics today. So, welcome Dr. Perlmutter.

Dr. Perlmutter: Well, I'm delighted to be here. Thanks for having me.

Katie: Thank you for being here. You're such an amazing resource and I think you bring a lot of clarity to a lot of topics especially in the health field that are confusing to a lot of people. So, I wanna jump right in and respect your time. One thing you write a whole lot about is Alzheimer's and Dementia and these kind of diseases that seem so confusing to a lot of people. You've been critical about the effort to finding a cure for Alzheimer's. Can you explain your perspective on this?

Dr. Perlmutter: Well, I'm not critical about an effort to find a cure for this devastating disease, far from it. I think that the researchers who are endeavoring to find a cure for Alzheimer's deserve a huge amount of credit. I think that maybe that perception has been brought forward because of my efforts to really focus on the idea of disease prevention as relates to Alzheimer's disease. I mean, if we could prevent the disease, there'd be no reason to have a cure. But, again, I'm all in when it comes to efforts to find a cure for this devastating condition that's affecting five and a half million Americans. I mean, I've been through it, I know what it's like to be a family member of an Alzheimer's patient. It's, you know, it's really very, very challenging.

So, we now fully understand that Alzheimer's is by and large preventable by exercise, by keeping blood sugar levels low and this is published in our well-respected peer-reviewed journals. For example, the research that relates blood sugar and Alzheimer's was published in The Journal of Alzheimer's Disease. Some really terrific work by a doctor, Melissa Schilling, as a matter of fact recently published from NYU, shows what a powerful relationship diabetes has in terms of developing Alzheimer's disease. So, that's the kind of focus that I think we need to have. John Kennedy said in his inauguration that the time to fix the roof is when the sun is shining. Again, I'm all in when it comes to finding a cure but, gee, why don't we emphasize prevention as it relates to the situation?

Katie: That's a great point and at least from what I've read of the conventional model, there seems to be some people who think that it's just genetic or there isn't prevention. And I know you said there's peer-reviewed studies that show the opposite, but what do you think are the factors that increase the risk of Alzheimer's disease and that people need to be addressing, especially if they think they have maybe a genetic predisposition to this?

Dr. Perlmutter: I think that, indeed, there are certainly plenty of risk factors that are far more important than the genetics of Alzheimer's disease that we need to pay very, very strict attention to. For example, becoming a type 2 diabetic which is, by and large, a choice based upon our lifestyle choices, quadruples a person's risk for

Alzheimer's. I mean, you know, if you live to be age 85, your risk of Alzheimer's right now is 50-50, anyway, despite your genetics. If you have a family member who has been diagnosed then your risk is obviously increased. If you happen to carry a specific gene marker called the ApoE-4 genotype or allele, your risk is increased depending, of course, on the number of those genes that you carry, one or two.

So, I don't think that we should generally consider Alzheimer's to be a genetic situation that you inherit, although there is a form of inherited Alzheimer's which is exceedingly rare. By and large, Alzheimer's needs to be looked upon as a manifestation of environmental issues, choices over which we have control, like diet, like exercise. There is a large body of research that demonstrates significant reduction in the risk for Alzheimer's disease in individuals who exercise on a regular basis. Similarly as mentioned, diabetes plays a huge role as does even subtle elevation of blood sugar, even without becoming diagnosed with diabetes.

So, you know, my despair is to some degree that that information isn't made available to the public in general. You know, we, in America, sort of are given the notion that we can live our lives however we choose and then when we suddenly have a problem, like Alzheimer's or blood pressure issues or diabetes or cancer, that there is going to be a magic cure available for us. Let's be very, very clear that there is no treatment of any utility available for Alzheimer's disease today, none whatsoever and yet, our most well-respected institutions are telling us that it is by and large preventable. So, you know, it's a bit frustrating that that word isn't getting out as much as it should and that becomes, you know, a life mission for somebody like myself.

Katie: I love that and you mentioned in passing that it affected you personally and that you had a family member. If you don't mind sharing, can you tell that story and how you came to have such an interest in this?

Dr. Perlmutter: I would say that my interest in Alzheimer's developed long before my father was diagnosed. You know, I've been practicing medicine for 35 years, most of that time the last thirty years has been as a neurologist. And so, I've been involved in Alzheimer's clinical treatment as well as research for a long, long time. More recently, my father developed Alzheimer's disease. A very brilliant brain surgeon and, you know, watching him deteriorate and ultimately die from that disease was very challenging for me. It was also, however, an event that galvanized my dedication to doing what I do and that is raising the level of information for the public in terms of what we can do, in terms of lifestyle choices that can keep this from happening.

So, you know, that's my story. That, you know, the cruel irony is here I am dedicating my life to this disease and it ends up claiming my own father. Such is the way things go but, you know, we take these life lessons and ask ourselves, okay, what does it mean, what am I supposed to do with this information, and how can I make the world a better place based upon, you know, this event?

Katie: I'm so sorry for your loss but so grateful that you're working to help others avoid this. And you have...I mentioned you have four books and the most...at least the one I've read the most is "Grain Brain," but can you talk about, you have a whole plan in all of your different books dedicated towards the prevention aspect of this into brain health. So, can you talk about some of this core tendency that you suggest for people?

Dr. Perlmutter: Well, I can for sure and I think that, you know, it's not just that Dr. Perlmutter has come up with these ideas but to be sure this is, you know, in our most well-respected peer-reviewed literature that, for example, research at UCLA and also University of Pittsburgh demonstrates that there is a profound benefit to the brain of being involved in aerobic exercise. We know that aerobic exercise changes our gene expression, leads to the production in the body of a chemical called BDNF, which is like growth hormone for the brain. It

protects brain cells. It actually leads to increased growth of new brain cells and it even leads to a better connection between brain cells all of which relates to a better brain and a brain that is more resistant to succumbing to Alzheimer's disease.

In an editorial that followed some recent research from a Dr. Erikson at UCLA and University of Pittsburgh, the editorial in "The Journal of Alzheimer's Disease" commented that if that lack of exercise or a sedentary lifestyle is responsible for about 20% of the 46 million Alzheimer's cases worldwide and that if people would engage in exercise, it would reduce the incidence of Alzheimer's by about 50%. That's huge. Can you imagine a disease that's costing Americans right now 230 billion dollars a year, that doesn't put a price tag on the emotional cost for family members? But the disease for which we have no treatment, 50% reduction if people would simply exercise. Gosh, that should be on the evening news on the front page of "The New York Times."

So, you know, we're getting there though. We're getting to a place where people are realizing that, you know, our medical research is great, we have great hopes for a cure as we talked about earlier but right now, today, we know the science that tells us this is by and large a preventable disease.

Katie: That's staggering. Like you said, any disease that you can reduce your risk by 50% with something free like exercise, that's incredible. What about stem cell therapy? I know there's been a little bit of press related to that recently. What are your thoughts on that?

Dr. Perlmutter: Well, we can embrace stem cell therapy. And, in fact, Kate, I have a way that you can get stem cell therapy to protect your brain right away and it's very, very expensive. All you have to do is go out and buy a new pair of sneakers because when you exercise, when you aerobically exercise, you are creating new stem cells in your brain that then develop into fully functional brain cells, neurons. So, that's exactly what it is we're talking about. We're talking about amplifying the stem cell therapy that's going on in your brain right this minute. This is something that continues for your entire lifetime and what you wanna know is what you can do to increase that activity.

We know that caloric restriction, the omega-3 DHA, the herb turmeric, something called whole coffee fruit concentrate, these are all ways to increase this BDNF which is the signal for your brain to turn on stem cell therapy. So, you don't need to go to a clinic in Tijuana and spend \$60,000 for a treatment that has no proven benefit or enroll yourself in a trial here in America where you may or may not get stem cells. You can do it right now, today, just by starting to exercise.

Katie: I love that. Are there exercises in particular that you recommend? I know, obviously, movement is great no matter what it is but I know a lot of people especially women after menopause, try to focus on weightlifting and weight-bearing exercise for the bone benefits as well but when it comes to the brain, are there types that stand out?

Dr. Perlmutter: It looks like according to the research that aerobics and, really, caloric expenditure is the real key to enhancing the brain vitality, making the brain more resistant to deterioration and actually growing new brain cells in the brain's memory center called the hippocampus. Again, that's work of Dr. Kirk Erickson and others collaborative research. So, new research is actually just been published that demonstrates improved cognitive function in individuals over the age of 50 based upon a variety of exercises including, not just aerobics, but even tai chi and resistive exercises as well. So, it turns out that probably the worst thing people can do for their brains is to sit on their butts all day. You know, frankly not only is that bad for their risk for

obesity and diabetes which are contributing factors to brain degeneration, but also certainly it cuts them off from what we've been talking about this idea of free stem cell therapy to build a better brain.

Katie: Yeah, that makes so much sense and I think a lot of people, at least in my age bracket, I'm in my 30s, they kind of ignore the idea of brain health. Like that's something they're gonna maybe consider addressing when they're in their 50s or 60s but I think you're so right, that if you start this now it's so much easier. Like anything, the earlier you start, the easier the prevention is and the more benefit you'll get over the long-term. Another thing I've seen a lot of, at least articles, I haven't seen in the studies directly but with the role of social interaction, there's all these articles that say, you know, like women who have close female friends have a lower risk or men who have good friends have a lower risk of Alzheimer's. What's that connection there, is there actually science that backs that up?

Dr. Perlmutter: There is science that backs it up. There are multiple studies that talk about social interaction and being engaged or being involved in activities that one finds joyful and the mechanism I think, again, is a bit speculative. But what we do know is that those individuals who are involved in relationships, who are involved in activities that tend to reduce stress, have lower levels of a chemical called cortisol. And the reason that's important is because cortisol plays some very important roles in human physiology that are adaptive and protective but we do know they've chronically elevated levels of cortisol are detrimental to the brain, both directly and also detrimental to the brain because of the changes that cortisol can make in terms of the gut bacteria as well as the leakiness of the gut. And that ultimately increases inflammation which is detrimental for the brain.

There's wonderful work by a Dr. Robert Sapolsky. He's really been quite the pioneer in looking at the relationship between our levels of stress, our social interaction and risk for degeneration of the brain. He's spent decades working with primates and has really done a lot of publication in this area. So, there's plenty of great books, textbooks actually written about the subject as well as multiple, multiple peer-reviewed scientific publications.

Katie: That's really helpful. So, you mentioned stress and I'd love to get your take on this as well because I think there's been a lot of awareness about meditation and just reducing mental stress. But from my perspective, at least, I feel like a lot of us have all these physical stressors that we maybe don't consider stress, that we interact with on a daily basis. Whether it's artificial light late into the evening that's affecting, like you mentioned the cortisol patterns to like stresses from our environment and our food, but where do you fall on that? What's your take on stresses impact on brain health and what do you recommend for people?

Dr. Perlmutter: Well, stress is a pretty encompassing topic, we, as mentioned. I mean, we can talk about emotional stress, environmental stress, stress that is metabolic based upon things going on within our bodies and, you know, it turns out that a low-level of stress in any of these and other categories is actually good for us to some degree. We call low-level stress of any of our body systems, when it's helpful it's called hormesis. It's a term that indicates that our bodies in their add...as our bodies adapt to these stresses, it's actually ultimately a positive experience. For example, everybody tends to castigate what are called free radicals, you know, these damaging free radicals that destroy our DNA and protein and fat, and therefore we need to load up on taking antioxidants in order to quench free radicals.

But, you know, free radicals do a good thing. They help us rid our bodies of invading bacteria, for example, but more importantly when we have the production of free radicals or our bodies are undergoing what is called

oxidative stress, there's the term, it actually is a powerful signal to our genome, our DNA to make important chemicals that are then helping us defend ourselves. We make our own antioxidants. We make our own anti-inflammatory chemicals. We up-regulate or turn on our detoxification pathways, for example, when we are stressed with a toxin.

So, we have wonderful built-in mechanisms to deal with stress and many of those mechanisms are actually, ultimately when they're activated very positive for us. It's when these systems are overwhelmed, either in the short-term by a huge level of challenge or stress, or chronically by a lower level but ongoing level of stress, whether it's emotional or toxic or metabolic. So, you know, for example, if we are constantly involved in a low-level of emotional stress, being in a bad work environment or a bad relationship, again, cortisol being one of the key players here is turned on. A low-level of cortisol is a good thing but a persistently elevated level of this chemical cortisol, as mentioned, invokes changes in the organisms that live in the gut, increases the leakiness of the gut which increases inflammation and is directly toxic to the cells that make up the brain's memory center.

So, it really isn't a question of black and white as it relates to stress. It's more of a contextual question in terms of, is it chronic elevation, chronic persistence of stress or in acute very severe stress that can have...that can overwhelm our protective mechanisms.

Katie: Got ya. And I know one thing I read, other interviews you've done and you speak about gratitude a lot. And just like exercises, a free way to scientifically reduce your risk of Alzheimer's, you talk a lot about the benefits of gratitude and how to cultivate that. So, can you explain the way that gratitude can help?

Dr. Perlmutter: I can and I think that clearly there's less hardcore science here as we talk about something as obtuse as gratitude or love and our acts of kindness, for example. You know, it's hard to imagine that scientists are really gonna wanna study that when they can be looking at, you know, CRISPR technology or something like that. But that said, I think that, you know, there are studies that demonstrate that individuals who are put in an environment in which they can either express gratitude or not, they have been studied with pretty high-level sophistication of brain scans that demonstrate changes in the activity of their brains whether they...when they're experiencing gratitude or expressing gratitude, rather, or not.

So, I think that, you know, we are early in the research looking at the effect of gratitude on the brain but I think that the early results demonstrate that it's very, very positive. I think that the expression of gratitude, showing your gratitude by your actions will ultimately be found to be a stress reducer and will help temper cortisol and through that mechanism as well will be found to be a good thing for you.

Katie: I love that. And one thing I've said many times in my own writing is that, all the health experts, it feels like there's so many different diets, different protocols but the one thing I'm yet to see anyone disagree on is the importance of sleep. I mean, I just see anyone say like, if you don't sleep you'll be healthier and obviously there's a brain connection here as well. So, what role does sleep play in maintaining a healthy brain?

Dr. Perlmutter: First, let me say that you're absolutely right, you know. While there are a multitude of dietary recommendations, although I will say that with time, the various seemingly disparate diets are coming closer and closer to some common ground in the middle with some fundamentals of lower sugar, lower carbs, higher fat and fiber. I mean, it's getting to be more and more common theme but as mentioned, sleep is uniformly accepted, quality sleep has been good for you. What's going on during sleep, there are many things. We know

that sleep is when we activate what is called our glymphatic system. That's sort of like the lymphatic system but in the brain and basically involved in the brain cleaning itself up. That's a very active energy dependent process that occurs during sleep and is fundamentally important for good brain function. We know that our memories, for example, are consolidated and categorized and put where they need to be during sleep as well.

So, sleep has some very important brain-related positive salubrious actions. Clearly, individuals who have interrupted sleep, who are not getting the benefit of deep sleep are at greater risk for a variety of problems, including diabetes, cancer and even Alzheimer's disease. So, I talked about that actually quite a bit in the Grain Brain whole life plan. Even talking about the importance of getting a sleep study, which even I did. Even though I think I sleep really, really well but because of my family history of Alzheimer's, I wanted to offload as many risk factors as I could. So, I spent the night in the sleep laboratory and underwent a sleep study. So, I think it's really important for people who even think they are sleeping well through the night, to have that type of study because it may be full of surprises.

Katie: Yeah. I agree. My husband by all aspects is like extremely healthy. We did the life insurance thing and he got like the super premium preferred, super healthy, and when he did a sleep study we found out he had like low-level sleep apnea. So, we're working on addressing that and I think you're right. There's things you can't just...when you're asleep, you're not able to take data points. So, that's a great tip as well. Your books, you mentioned your books, I'll make sure those are all linked in the show notes, they're awesome and they're available, I'm sure, on Amazon and in every bookstore. But when I mentioned I was gonna be interviewing you, my audience was really excited and had a lot of questions they wanted me to throw at you. So, if you're okay with that, I'm gonna go through some that they would love answers to.

Dr. Perlmutter: Is this the lightning round?

Katie: The lightning round, yes. I won't talk fast.

Dr. Perlmutter: And these answers count double?

Katie: They do count double but feel free talk as long as you want. You don't have to answer quickly. So, the first one is about ketosis and what your thoughts are on that. Obviously, it's a super popular diet right now. I'm getting a lot of search terms even on my blog, people looking for recipes for ketosis or information about it. So, what do you think about ketosis and is there a time and a place for it or are there cautions about it? What do you recommend?

Dr. Perlmutter: Let me first take a step back and just sort of define what we're talking about here. Ketosis is a term that's used for a condition in the body when the fuel that powers the body has been shifted away from sugar more towards breaking down fat and then that fat goes to the liver and creates a certain, what are called ketone bodies that we then use not only for fuel but even more importantly these ketone bodies, these chemicals that are made when the...when the liver's metabolizing fat. These chemicals called ketone bodies have profound activity in terms of what is called cell signaling, in terms of changing the expression of our DNA, a very wide variety of activities that these ketone bodies have. The idea of going into ketosis is really gaining a lot of popularity as of late and it's really a brand new thing.

But, you know, I say that tongue in cheek because truthfully for most of our time on this planet, for probably about 98% of our time walking this planet, humans have been in and out of ketosis on a regular basis. Why?

Because we didn't have access to carbohydrates or certainly any access to sugar except maybe when the wild blueberries would ripen once a year. Our diets were based upon fat and protein for the most part, as well as lots of dietary fiber and some complex carbohydrates. So, our bodies really weren't exposed to sugar and the pounding with carbohydrates that so typifies the modern situation.

Being in ketosis is a good thing for the brain. The brain is much more able to use fat as a fuel source as opposed to glucose, when the brain is burning, if you will, fat as a fuel source, it's doing so creating the energy molecules of...that are created called ATP but does so with the side effect of less production of what are called damaging free radicals. Higher levels of free radicals are produced when the brain burns glucose or sugar. So, we know that beyond just as a fuel source, the other ideas of burning, of having ketones in your body and specifically one that is called beta hydroxybutyrate or thinking, just think about butyrate. But what...as I mentioned before, this does is it reduces inflammation. It reduces the production of free radicals. It helps balance the immune system and then you have some widespread positive effects of being in ketosis.

If people are interested in learning more, as you mentioned, you can link to my website. I've got a lot of great interviews with sort of the leaders in this whole ketosis movement. I will be interviewing others. There's a wonderful book called, "The Metabolic Approach to Cancer: Integrating Deep Nutrition, the Ketogenic Diet, and Nontoxic Bio-Individualized Therapies," a terrific book that really takes this somewhat challenging science of ketosis and makes it user-friendly in terms of what you can do day-to-day to be in ketosis. And, you know, I have to say that being in ketosis, I think is good for the brain. It's certainly being looked upon as a treatment for brain disorders. Been published in 2005 as a powerfully effective treatment for Parkinson's disease, a medical food that is approved by the FDA for Alzheimer's, is based on this notion of getting more ketone bodies into the bloodstream.

But you don't have to take anything special, you just have to stop the sugar and eat more good types of fats. Some fats that will help you get into ketosis include things like coconut oil or even more importantly what's called MCT oil, that a person can buy at the health food store. These are ways of pushing your body into ketosis and ultimately, you know, staying in ketosis.

Katie: Yeah. It's great. I think you have resources on your website, as well. I'll make sure to link to those. Another question that I know you've written extensively about and people have questions about are, what about artificial sweeteners and are there any safe ones? What about xylitol, erythritol and stevia? So, I know you have some strong thoughts on artificial sweeteners.

Dr. Perlmutter: I do and the reason I have these thoughts not about these so-called natural alternatives that you mentioned are somewhat natural alternatives, but about the aspartame and the saccharin that are so prevalent in food, in medicines, in chewing gum and certainly in the diet drinks that people think are the right way to lose weight and reduce risk for diabetes. The reality is that these dietary ingredients, especially the artificial sweeteners used in the diet drinks are dramatically associated with an increased risk for the very diseases that they were designed to prevent. In other words, the more diet soda a person drinks, the greater is his or her risk for becoming obese. The greater is his or her risk for developing type 2 diabetes. In fact, the risk for type 2 diabetes is twice as high in people who constantly drink diet drinks in contrast to those who drink sugar sweetened drinks.

Now, that doesn't make sense and I have to say that for a long time, we labored over these massive, massive studies, 50-60,000 people. We wondered what could possibly this mechanism be for all of this data that's

coming out that shows diabetes risk, obesity risk being so dramatically increased in people drinking soda that has no calories, no sugar whatsoever, didn't make sense.

Well, to answer the question Israeli researcher looked at both human and...performed both human and animal studies and demonstrated that the reason people get fat drinking Diet Coke is because of the changes in their microbiome, their gut bacteria. So, their gut bacteria are dramatically changed to the extent that they think that person is starving and they put into play metabolic changes that allow that person to hold on to every calorie and make body fat, and that also paves the way for diabetes. Which, as mentioned earlier, quadruples a person's risk for developing dementia of the Alzheimer's type. So, you know, having said that, it was really quite interesting when quite recently, as I'm sure you're aware, was just a few weeks ago, a study was published that made the news that demonstrated that people who chronically consume diet soda have a dramatically increased risk for developing dementia.

And, again, you know, this was published in "The Journal of Stroke." Just in April, Volume 48, and demonstrates that those people who are drinking a lot of these diet sodas have not only an increased risk for becoming demented but also a risk, increased risk for developing stroke as well. This was a fairly large study. It looked at about 3,000 individuals in the arm that looked at stroke risk and about 1,500 individuals who were over the age of 60, in terms of risk for dementia. So, you know, we would have puzzled over this, over these results we know why could it be but now that we understand how damaging artificial sweeteners are for the gut bacteria, this study just came out last month makes total sense.

Katie: That does make sense and it's great that we understand it although I don't know that will be any easier for people who are big fans of diet drinking. It seems like they have almost like an addictive quality.

Dr. Perlmutter: That's a very good point, you know, and that gets to our, the second part of your question about the other sweeteners. The sugar alcohols and stevia, which I think are relatively safe. I don't think there's been any real significant research that shows changes in the gut bacteria from stevia or the sugar alcohols. But that said, my issue is that I really want people to, as you mentioned, get away from catering to their sweet tooth all the time and that will make getting off sugar and the artificial sweeteners a lot easier. Sugar in and of itself is highly addictive. According to Dr. Robert Lustig, perhaps more addictive than cocaine, another white powder that we've...that has entered its way into our society. So, you're correct. I mean, the areas of the brain that are affected, the so-called nucleus accumbens that seems to be the center of this addictive potential of sugar is dramatically activated and makes it very difficult for people to come off of the stuff.

Katie: That makes total sense and I've avoided any of the artificial sweeteners you mentioned for a really long time. Pretty much never drink them but even I haven't had refined sugar in years and years but about two months ago, I went off of even like natural, "natural sweeteners" like maple syrup and even stevia just kind of reset my taste buds. And it is dramatic, how quickly and how differently you learn to love the taste of like raspberries because they taste so sweet, after giving up even the natural sweeteners like stevia. And you mentioned studies about artificial sweeteners and another one that has hit the news recently is about gluten-free diets and you see all these headlines like, that gluten-free diets are gonna cause heart disease unless you're still active, you should absolutely not be gluten-free. You've written about this, but people asked about this, what's your take on that and is there a danger to a gluten-free diet?

Dr. Perlmutter: Well, I mean, the headlines spun the research to indicate that somehow going off of gluten

would increase your risk of heart disease and that's a heck of a spin. That's not what the study published in Volume 357 of BMJ, formally the "British Medical Journal" demonstrated. This was a study by Harvard researchers of about 65,000 women and about 45,000 men, and it demonstrated that there was no benefit to going off of gluten in terms of the heart for individuals. So, it got spun into this crazy idea that going gluten-free somehow would increase your risk of heart disease. No. What the authors correctly described, and I'm all in with them which I think when I blogged about it was very interesting to my readers because I agreed with them, what they described was that when people avoid gluten, they tend to avoid all fiber. Other sources of fiber and what they called other beneficial whole grains which do not necessarily contain gluten.

So, you know, people going off of gluten are getting not enough fiber and that is a bad thing for inflammatory conditions like heart disease. So, I think it's a great point. The point is that, you know, my recommendation, yes, let's stay off gluten for the countless reasons that we've described. But, by all means, you've got make sure you're getting enough fiber in your diet. So, if you go gluten-free and at the same time stop eating other sources of fiber, then you're going to be at risk for heart disease and other things. But I was so taken by the way the media spun, you know, any chance people get to knock the gluten-free diet, boy, they just jump right on it despite the research that shows that gluten really has no place in terms of a salubrious life plan.

Katie: Absolutely. And I always say like, you know what else has a tone of fiber? Vegetables. And there's also no experts that I would know of, that says, don't eat vegetables. That's kind of another one of those universal things that are supposed to be great for you.

Dr. Perlmutter: Well, who knows, you know. Kate, maybe there will be a day. I'm not taking it literally off the table but, you know, who thought that there be a time when we were saying that eating fat is a good thing. That you'll gain weight by consuming sugar-free beverage, you know. So, things get overturned and I think it'd be hard to imagine that eating vegetables is gonna someday be thought to be not good for you. So, I don't think I'll be around when that happens if it ever does but, you know, anything can happen. And I think, you know, one area that I've been criticized in over the years and certainly one scathing editorial about me a couple of years ago is that, I've changed my message over time. Because 20 years ago, I was advocating a lower fat diet and now how could you believe Dr. Perlmutter because now he says to eat more fat.

And, you know, I would submit that that's my job. My job is to stay on top of the best research that's available and give the audience, to those who will listen, what I believe is the best information, again, based upon our most highly respected research. So, my message will change with time, you know. I'm telling everybody right now, I don't know how it will change or it would have already changed in that direction but that's what you're looking for. You're looking for not somebody to define the way it is end of story and dig your feet in the soil, but rather to be open to new ideas. That's what moves the ball down the field.

Katie: Exactly, 100%. And I think it's amazing that there are doctors like you who are still reading the current research and pushing the line to figuring out what is the best cutting edge. And I think my encouragement would also be anyone listening, you have to do that for yourself, too. Don't outsource your health to anybody. Always be researching and trying what works for you and measuring and learning new metrics because we're all in that same place of learning together. Another thing that you have written a lot about and that probably the most asked question for my listeners was, what about statin drugs? What to do about these and is there ever a time for them or what do you do when your doctor's putting the pressure on to take them?

Dr. Perlmutter: I hear a lot of questions there and I guess there are a small subset of individuals who may

benefit from statin medications. You know, what's so challenging for me is every few months, we see a new study being undertaken to find another use for statins. There's such a push, for example, to somehow convince neurologists that we should be prescribing statins to people as a preventive for Alzheimer's. And there's no research to support that. You know, this all stems from the notion that cholesterol is bad, cholesterol is our enemy. How could a chemical that is the building block of the cell membrane, that is so largely represented in the brain fundamental for the building of brain cells, that acts as a brain antioxidant, that acts as a precursor for testosterone, estrogen, progesterone, cortisol, that acts as a precursor for vitamin D in the human body, how can we talk about this as being a bad thing?

You know, it's just, it's very, very challenging how this data got manipulated to support drugs that were found to lower this chemical cholesterol. These drugs were developed and then suddenly...then suddenly became, cholesterol became a bad thing. You know, in my business, we have to look at the literature that shows that elderly people with the lowest cholesterol have the highest risk for dementia. Published literature, the references are on my website, it's in "Grain Brain." And, you know, so cholesterol is not the enemy that we've made it out to be.

Having said that, there are certainly changes that happen to the body's lipids, cholesterol being one of them, the body's fats that are detrimental to health and need to be avoided. Let me give you an example. There is something that somehow is called bad cholesterol and it's called LDL or low-density lipoprotein. Bad cholesterol is neither bad nor is it cholesterol. So, whoever on Madison Avenue came up with that term, probably won a prize. LDL is a protein, low-density lipoprotein. It is actually what we call a carrier protein and what it does is it carries various protein, various fats rather, throughout the body to where they're needed. One of the fats that it transports is cholesterol.

So, that said, it plays a very important role. We love our LDL because it's transporting various fats throughout the body to where they are needed. The problem becomes, however, not when we have high-levels of the LDL but more importantly when the LDL becomes oxidized or damaged. Once that happens, an LDL gets oxidized, and we'll talk about why that happens in just a moment. Then, it looks different to our immune system and we begin to attack LDL wherever it may be. Whether it's in the lining of an artery or elsewhere, we attack this LDL with our immune systems and immune cells begin to accumulate in that area and that can do some bad things, like narrowing our blood vessels.

So, when the researchers found LDL in the region of the plaque that closes off the coronary artery, understand that the LDL was there because it was bringing things like cholesterol to help heal the inflammation. But that said, you know, they found cholesterol, they found the LDL in the plaque and therefore said, "This is the cause of the problem." When in reality, nothing is further from the truth. It's like blaming the fireman because whenever you go to a house on fire, there they are. They aren't the cause of the problem, they're there to take care of the issue.

The oxidation or damage to LDL is what tends to make it what we call atherogenic or makes it, changes it in such a way that it tends to narrow the arteries of the heart. Oxidation of LDL happens when our blood sugar is elevated, as well as when we don't have enough anti oxidant protection around. Having said that, it is wonderful to see that comprehensive heart laboratory studies that look at the body's fats or lipid profiles are now actually looking at the level of oxidized LDL. So, not just the level of so-called bad cholesterol or good cholesterol HDL, but rather whether this LDL has been oxidized or not. Now, a surefire way to oxidize your LDL is to have a higher blood sugar. Oxidized LDL correlates very nicely with a blood test called A1C. Which is a

measurement of the average blood sugar.

Katie: Got it. That puts it in perspective a lot. And another thing you talked about related to this, and you mentioned it earlier on, was about omega-3 and fish oil and DHAs specifically and there were some questions related to this especially what do you recommend, as far as what type and what dosage.

Dr. Perlmutter: Well, first let's talk about why. I mean, DHA is a critically important nutrient. We don't really make DHA in the human body so we have to get it from our food sources or via a nutritional supplement. DHA is the most represented polyunsaturated omega-3 in the brain and in the retina. It makes up a significant amount, 10% to 20% of the total fat in our brain. Taking a step back, yes, we get DHA from natural sources and interesting to note that the most concentrated source of DHA in nature isn't squid oil or fish oil, it's actually human breast milk.

So, you know, that sort of spins this DHA a little bit so we understand how important it is for brain development. DHA, docosahexaenoic acid, one of the important omega-3s, is important because it's a structural component of the brain and brain cells but it also acts in many, many other ways. It's a powerful anti-inflammatory, it acts as what we call a COX-2 inhibitor. So, it acts sort of like many of the over-the-counter and prescription drugs that people take but more importantly, I believe, DHA acts as a stimulator, a gene stimulator for the gene that makes a chemical called BDNF which is what turns on the growth of new brain cells.

So, just like aerobic exercise and buying that pair of sneakers, taking DHA as a supplement or eating fatty cold-water fish turns on this gene pathway that then amplifies the growth of new brain cells, amplifies synaptogenesis or the way that brain cells connect to each other. Higher levels of DHA are associated with a lower risk for dementia, lower risk for Alzheimer's disease, work that was done at Rush University. So, this is a real big player.

We know recent research that just came out last year from Dr. Dale Bredeisen at UCLA, shows that DHA actually amplifies a mechanism that turns down inflammation and how that relates to dementia. We know that Alzheimer's is, for example, an inflammatory disease of the brain. We know that our bodies limit inflammation by what are called these specialized resolving mediators or SRMs and that DHA tends to enhance this activity. So, acts again to reduce inflammation. So, DHA is important. I think a good dosage for anybody would be about 800 to 1,000 milligrams a day. Certainly higher in at risk individuals because they have underlying issues or they're at risk by virtue of their family history.

I think it's wonderful that we're now seeing infant formula being enriched with DHA which is again, you know, a credit to the manufacturers of infant formula trying to again further emulate what's in breast milk. Let me be very clear, I think breastfeeding is, by far and away, the best thing for children, for infants. But that said, the addition of DHA to the infant formula was done because it is so recognized as being such an important player for brain development.

Katie: That's really helpful to understand and it makes sense when you put it in the role how it's affecting the brain. Another thing that you've written pretty extensively about and that I have some questions come up with listeners was about magnesium and what role it has and how is the best way to get magnesium?

Dr. Perlmutter: Magnesium is a really underrated but nonetheless very important nutrient. It is obviously a

chemical. It is, you know, found in certain various foods that are rich in magnesium. You know, the fact of the matter is that those...even though we talk about those foods that are high in magnesium, and we'll cover those in just a minute, you have to grow foods in soil that contains magnesium in order for the food then to be able to pick it up. If it's not there, you can still grow food. I mean, you can, you know, grow iceberg lettuce but if that, you know, if the soil in which that food is depleted of magnesium and selenium and copper, etc., then there's no way it's gonna end up in the food. It's not gonna come, you know, it doesn't happen, you know, magically.

But the foods rich in magnesium are things like black beans and almonds, yogurt or kefir, pumpkin seeds, chards, spinach, kale, other leafy greens really rich in magnesium. Magnesium serves as what we call a co-factor. Meaning that it allows various enzymes in the body to work, enzymes that make protein, enzymes that are involved in energy utilization, enzymes that are involved in even making our DNA. Many of them are dependent upon adequate levels of magnesium in order to function properly. So, you know, that said, it's really important to know that you've got good magnesium levels in your body and as an aside, I think it's important to know that the typical magnesium blood test that your doctor may give you is not very helpful.

There is another form of magnesium blood test that any doctor can perform and it looks at the magnesium level within cells. They happen to use red blood cells. So, it's called an erythrocyte magnesium level, any doctor can order it, many labs perform it and that's a far better indicator of the intracellular level of magnesium and that matters because that's where magnesium lives. It lives in the cell. So, if you're just doing the regular blood test, you're gonna miss it.

So, you know, by all means, eat magnesium rich foods, a couple of spinach, if it's organic and has higher levels of magnesium, is gonna give you 30% to 40% of your daily requirement of magnesium. But, again, I think that, you know, the data shows that about 52% of Americans are getting less than the required daily requirement of magnesium in their diets and therefore magnesium supplementation, I think, is really, really important. You know, of all the supplements in the health food store, I think the magnesium supplements have got to be the least expensive. And therefore, you know, it's something I think everybody can afford and, you know, there are the magnesium salts that people can buy, that where magnesium is bound to things like chloride, magnesium chloride, magnesium sulphate.

But I tend to recommend the chelated forms of magnesium. There's now a form of magnesium that's actually chelated or bound to Pea Protein, Organic Pea Protein, and I have, so one that I take. So, you can go to any health food store and ask for protein bound magnesium organic and it's delicious and, you know, will go a long way to bringing magnesium levels up. People with low magnesium levels can have a wide variety of complaints from heart rhythm irregularities to depression, fatigue, sleep issues, muscle fatigue, you name it. So, bowel issues, the panorama of kinds of complaints that people have and even medical issues that can stem from low magnesium, is really very, very extensive.

Katie: Agreed, and it's so inexpensive to remedy and that's a great tip on the protein bound. Do people typically, are they able to observe that, but I know there are some digestive troubles that come with certain forms of magnesium for certain people...

Dr. Perlmutter: Exactly, right. And, you know, that's one of the big challenges in magnesium supplements. Is because typically the magnesium salts, even the powdered ones are the ones, you know, even the effervescent powder ones can be very upsetting to your stomach and they're very...they can give, you

know...we use magnesium therapeutically in people who are constipated and they just overdo it a little bit and before you know it, you've got yourself an issue there as well. So, that's why it's good to choose a chelated magnesium and the one, you know, that you can find bound to protein, I think, is wonderfully tolerated and demonstrates significant improvement in raising magnesium levels. So, you know, that would be my recommendation.

Katie: Perfect, and I know you have a post on that so I'll make sure to link to that so we can find it but, of course, it's also on your website. And speaking of your website and your resources, you are chairing an upcoming symposium for The Institute of Functional Medicine dealing specifically with brain disorders and I know there's, we talked about this a lot but there's probably a lot more questions people have. So, can you explain how people can find that and of course I'll have a link as well?

Dr. Perlmutter: Sure. The Institute for Functional Medicine is, in my opinion, I think the very, very highest level of respect in terms of integrative medicine, looking at more than just responding to a patient and treating their illness. So, I've been involved with IFM for a couple of decades, 25 years. So, the meeting is in Los Angeles and this year, we're talking about neuroplasticity and also neurogenesis, the growth of new brain cells with, you know, some of the top leaders in the world. Dr. Rudolph Tanzi from Harvard, Dr. Dale Bredesen, I think I mentioned his work earlier, Michael Merzenich. Some real power players are gonna be in Los Angeles beginning on June the 1st.

And I would say that if your listeners are interested, visit the IFM website. It's ifm.org. They can find out more about IFM itself there but also about the conference itself. And I think there's a webinar that I did for them that may be on their website at this point or maybe you get it if you sign up. I don't know how that works, I didn't keep track but any of your listeners who could be...who could go to LA and participate in this, I think, it'd be an incredibly powerful event.

Katie: Wonderful. I'll have a link to that, as well. And lastly, where can people find you online? You have a podcast, you have a website, how can people find you and learn more?

Dr. Perlmutter: Facebook is David Perlmutter MD, we post everyday. My website is DrPerlmutter.com, D-R-Perlmutter, no period, dot com. And the nice thing about our website is it is deeply searchable and all of the studies that I blog about or discuss are all there in their full PDF form so people can just go to the learn section on my website and then to the science section and can search, you know, anything you're interested in. And we've cultivated a vast repository of really great information. And, you know, I do Twitter, I do Instagram as well, I think Twitter is @Davidperlmutter. I think also Instagram, but I think, you know, those are more, I have to say more for fun and just keeping people up-to-date with what I'm doing. I think the real resource information is gonna be the blog site and Facebook.

Katie: I agree. I'm gonna link to a few my favorite posts that you have but you have so much great information on there and especially anyone who's worried about like any kind of Alzheimer's or dementia or brain disease or has more questions on statins or magnesium, you have great posts and podcast on pretty much all of those. So, those links will be in the show notes but of course also at your website, Dr. Perlmutter. I wanna make sure I respect your time. But I appreciate so much you being here and shedding light on this. You're such an amazing resource and maybe we'll be able to do a round two one day, if we get a lot more questions.

Dr. Perlmutter: Well, I will already agree to doing that, how does that sound? And I appreciate the opportunity

to share, you know, my information, how I see things and I think we mentioned this earlier and that is, you know, it's all about what works for you. You don't have to take everything I say and incorporate that into your program. Be very individualistic about it and also be malleable. Be able to embrace the notion that, you know, some of the changes that you make might not be positive and that's what it's all about and that's how we learn.

Katie: I love it. Thank you so much for your time.

Dr. Perlmutter: Thank you. Talk to you soon.

Katie: Sounds great and thanks to all of you for listening. I'll see you next time on the Healthy Moms Podcast.

If you're enjoying these interviews, would you please take two minutes to leave a rating or review on iTunes for me? Doing this helps more people to find the podcast, which means even more moms and families could benefit from the information. I really appreciate your time, and thanks as always for listening.