Introduction and Diet Quality Overview

Welcome back for another wonderful conversation we're going to have with one of the stars of the plant based world, Brenda Davis. How are you today? Oh, I'm great.

And I'm just so happy to be with you today, Dr. Marbas. Oh, please call me Laurie. Oh, okay. It's an absolute delight to to finally one get to meet you, but it's just, you know, really educate our audience with all of your experience and specifically surrounding the quality of diet, which I think we can start with, is just the generalities.

If maybe you can share with us what what is a quality of a diet in particular, you know, a plant based diet versus medium omnivore diet. What what are the differences specifically around the hypertension?

Yeah. So, you know, it's really interesting when you look at the evidence on plant based diets and, you know, various chronic diseases, it was including hypertension and cardiovascular disease and diabetes and so on.

The evidence is really quite overwhelming that people who are eating healthy plant based diets where Whole Foods predominate, they do remarkably well.

On the other hand, people who are eating plant based diets where highly processed plant foods predominate, they, you know, really aren't at any advantage over people eating omnivorous diet.

So we need to just be really conscious of that because when we say vegetarian or vegan, it can be a vegan diet or predominantly a vegan diet, or it can be a predominantly highly processed vegan diet.

And those are very, very different where chronic disease and hypertension risk are concerned. Because you describe what that. What do you mean by a whole food.

Because I think that's really the important key here. Yes. So Whole Foods are generally Whole Foods. We're talking about whole fruits and vegetables. We're talking about whole grains.

Whole Foods vs Processed Plant-Based Diets

We're talking, you know, as minimally processed, either unprocessed or minimally processed. And so I would I think grains are really good examples because an intact grain like Quinoa berries, or oat groats something like that, there's there's nothing harmful added, there's nothing healthful taken away.

And it takes the body some time to digest and absorb the nutrients in that food. So it has a very, very low glycemic impact, you know, slow impact on blood sugar.

But even if you take that same whole grain and you you, you know, you roll it, you you grind it, you flake it, you puff it. It's a very different thing, even though it's still a whole grain, it's more highly processed.

And in the in the sort of doing the processing well, often we add fat and sugar and salt and we, we make that food a lot less conducive to disease risk reduction.

And so even when it's a whole grain, of course, it's even worse if it's refined grain. But the degree of processing of a food makes such a difference because processing often means adding cheap fat, cheap sugar, salt and, you know, additives and preservatives and so forth.

So that's the big difference. Absolutely. And before we had started our conversation, you had mentioned an Adventist study in looking at quality of diets between vegans and vegetarians and omnivores that were healthy.

Could you speak to that? Because I thought that was really interesting. Yeah. So so there are probably three main groups of individuals that we've been following for years and looking at.

So these groups of individuals are actually similar health conscious individuals who who eat different dietary patterns, but they exercise about the same amount, they sleep about the same amount, they they drink about the same amount.

They smoke about the same amount. So all of these potentially confounding variables are controlled for and and one of them is the Adventist Health Study 2 and others at Oxford.

And the third is the Taiwanese is are the Taiwanese studies, the Taiwanese vegetarian studying in the Taiwanese health study. And in all of these studies, we see tend to see the lowest risk of disease among the vegans and the highest among the omnivores.

And that's true for hypertension as well. So in the Adventist Health study 2 lacto ovo vegetarians had a 55% lower risk of hypertension compared to similar health conscious non vegetarians and vegans had a 75% lower risk.

Just phenomenal. And the results for Oxford were actually very similar as well. I mean, that's incredible. So what do you think in relation to these diets in the liver?

They're doing everything else, other lifestyle, things that we would be encouraging people to do, exercise or whatever. What do you think it is about the vegan, so to speak, that makes them stand apart?

Yeah, so I think the reason they do better, there are a number of reasons. Number one is they have a lower BMI and a lower BMI just means they have less body fat.

And in fact, in the Adventist Health Study 2 the vegans were the only dietary group that were within that healthy BMI range between 18.5 and 24.9.

Adventist Study and Hypertension Risk

And we other groups who are above eating lack overall vegetarians were above 24.9. Now in Oxford, all of the dietary groups were within the healthy BMI, but the vegans had the lowest BMI somewhere around 21-22 compared to those, even though they were within the healthy, they were at the higher end of the healthy range in the other dietary categories.

So body weight is a big one and sodium intake is also a big one. And of course the you know, in in Whole Foods, people eating healthy, less processed plant based diets, they tend to have a fairly low sodium intake because 70, 75% of the sodium in the diet comes from processed foods.

So when you when you are limiting or eliminating those, the dietary sodium is generally well within the sort of CDRR chronic disease risk reduction range.

And so I think that's another thing a lot of people are eating plant based, are health conscious, they do use fewer highly processed foods. So naturally they would have less sodium intake.

And then the other thing that I think is interesting is potassium and magnesium are both pretty generally higher in plant based diets, especially potassium.

And I think those can both provide an advantage and magnesium is sort of at the center of the chlorophyl molecule in it. You know, it's concentrated in leafy greens and legumes and nuts and seeds and whole grains and other high fiber foods.

So plant based eaters tend to have, you know, reasonable intakes. And dietary magnesium also helps to lower blood pressure by promoting health. So a healthy endothelial function and vasodilation so that you that that's

important as well.

And then calcium, I would say generally calcium is is is helpful in preventing or treating hypertension. And that's one of the challenges for for plant based eaters is they do tend to have a little bit lower calcium intake.

However, they don't need to, but we think fairly easily get calcium to where it needs to be. Then the other thing that I think provides a significant advantage is a higher intake of fiber.

And certainly we know that that fiber is sort of independent, reducer blood pressure as well. And high fiber, of course, is is found only in plant foods.

It's not present in animal products. So people that are eating only plant foods, people that are 100% plant based have the highest intakes of dietary fiber and that is likely quite protective as well.

And then the other thing is, is that we consume more naturally occurring nitrates from from, you know, nitrate rich vegetables. And and they they this tends to help reduce inflammation and enhance nitric oxide production as well.

So that can also help to lower blood pressure. And then the other thing that I think is is worth mentioning, two other things. One is phytonutrients, the polyphenol compounds phytoestrogen organic all the organ sulfur compounds in the vegetables plant sterols.

Why Vegans Often Have Lower Blood Pressure

All of those have been found to be protective in terms of antioxidant, anti-inflammatory, vasodilation, all of those things. And of course, phytonutrients are concentrated in the colorful plant foods and in some trees and herbs and spices and so forth as well.

And then the last thing that I think is worth mentioning is that is that there are certain things that a plant based diet naturally would consume less.

And so, for example, less saturated fat, fewer advanced glycation end products and less of the precursors of TMAO, which is an assertion that compound those, which also has been linked to hypertension.

There are a lot of potentially problematic compounds, even if you think of some of the other compounds like heterocyclic amines and New five GC, which is a very pro-inflammatory molecule.

So all of these things, when you eat plant based, your you're minimizing grain take off. So that's perfect. So I think this is a wonderful Segway to kind of jump into.

If you had someone who was presented to you and saying, okay, I'm willing to do this plant based diet, how would you design an optimal whole food plant based diet for someone, one who maybe wants to prevent hypertension or who has hypertension?

Absolutely. So number one is to make whole plant foods the foundation of the diet. And what you're really wanting is at least five servings of vegetables a day.

And I would say ideally more at least three servings of leafy greens. And when I say a serving, we're talking about a cup of leafy greens or a half a cup of cooked or raw vegetables.

And you want the dark greens, if at all possible. And then I would say at least four servings of fruits. These are really good sources of a number of phytochemicals and potassium as well.

And some of the you know, some of the optimal choices in this group are berries and citrus fruits. And then I would say in terms of whole grains, you're looking at probably about three grains or something that you vary your intake according to your energy requirements.

And so for people that are limiting calories to reduce body weight, to reach a healthy body weight, you may be eating only one or two servings a day for people who are athletes and burning three or 4000 calories a day.

You might be eating 14 or 16 servings. So it will vary depending on your energy needs. But the key here is to really stick to intact grains as much as possible when you're trying to reverse disease because intact grains have have nothing harmful added.

There's no added sodium. There's no reason that there's no added fat or sugar or any of that. Whereas if you take that whole grain and you grind it and then you make flour, crackers or cookies or whatever the case may be, generally you're adding so you're adding sugar, you're adding fat and so forth.

And when you increase the surface area of the grains, you're also increasing it's increasing its rate of absorption into the gastrointestinal system and the impact on blood glucose.

So you want to stick mostly to intact grains, and that doesn't need cut grains like steel, cut oats and and bulgur or whatever are absolutely fine as well.

Well, grains are, I think, a reasonable choice, like rolled oats, but getting too much. But you want to just stick mostly to those grains. And then as you go down looking at the flour products, you want to reduce your intake of those if you're trying to really reduce your your disease risk.

And so that there and then looking at plant based protein choices you I would say you want to aim for about three servings a day and or more for some individuals.

But one serving is a half a cup of beans, lentils, split pea, split peas, tofu cafe or a cup of raw sprouted lentils, a quarter cup of peanuts, two tablespoons of peanut butter.

And so in this group, if you're trying to have the greatest impact on blood pressure, again, you want to be sticking mainly to the Whole Foods. So beans, lentils, split peas.

Certainly tofu is a very reasonable option as well. Tempeh is a great option, but the vegetarian meat substitutes not that you should never consume these foods, but they are going to be higher in sodium.

They are going to be higher in fat. So those are more optional foods rather than something that you would be eating on a daily basis. And of course, when you're preparing the, you know, the legumes and so on, you want to be conscious of the use of sodium and then I would say an absolutely vital part of a really healthy plant based diet is also nuts and seeds.

These are our sources of central fatty acids, and they can be wonderful sources of some of the minerals, especially, that are a little more challenging to get enough up.

And so including nuts and seeds can be helpful. And the other thing about nuts and seeds is they contain they are, in my view, the healthiest sources of fats and and fats are necessary for they absorption of all of the fat soluble nutrients in the diet.

Building an Optimal Whole-Food Plant-Based Diet

So whether it's vitamin, you know, it's vitamin pre vitamin E carotenoids or provide a mini carotenoids and and things like vitamin D and vitamin E and these nutrients, but also all of the phytochemicals and antioxidants that are fat soluble as well.

I think they're just a very important part of the diet. And then the other thing is, you know, you want to also generously anoint these foods with herbs and spices because these are really concentrated sources of valuable antioxidants and phytochemicals.

And then the other thing I would say in in in terms of fine tuning the diet is you do want to make sure you're meeting your nutrient requirements. You're getting enough fiber, which isn't an issue when you're eating whole plant foods, but you do want to make sure nutrient needs are met.

And you're you're going to get plenty of of potassium and magnesium and most of your B vitamins other than B12 and vitamin E and all of these nutrients, we actually tend to be at an advantage in terms of many micronutrients compared to omnivores.

But there are some nutrients that we will fall short on often if we're not really planning the diet well. And some of those nutrients include calcium, vitamin D, iron, zinc, iodine and cows.

And I mentioned B12, of course. And so calcium is one of the nutrients we do need to be aware of. And one of the things I think one of the reasons people are so aware of calcium is because we've been trained from a very young age that dairy products are the source of calcium.

We don't teach people about other sources. So one of the things we can do is include some fortified nondairy milk or yogurt in the diet to help boost calcium intakes.

But grains that are low in oxalate like broccoli, bok choy, kale, mustard greens, cabbage, turnip greens these kinds of greens are actually excellent sources of calcium because the calcium in these greens is very absorbable, in contrast to spinach beet greens and Swiss chard, which are high in oxalate.

And we tend not to absorb much of the calcium that is present there. And then tofu can be a great source of calcium and then things like chia seeds and almonds and almond butter and even some ligands like soybeans, white beans.

Black beans are all good sources too. And so and then the other thing that, of course, we need to mention is that sodium intake needs to be limited. There's no question the evidence is pretty overwhelming that sodium is directly associated with increased blood pressure.

And so how much sodium, I would say it should be limited to not more than 1500 milligrams a day for people who are at risk for hypertension. But really, if you're eating a Whole Foods plant based diet and you're not using a lot of processed foods, it's pretty easy to fall in the range of I was going to 1500 milligrams of sodium.

And so the biggest thing to reduce sodium is to minimize processed foods. They're the biggest sources. And that means canned and packaged foods. One of the things, if you're using some canned foods is to look for low or no sodium options.

And then, of course, you want to minimize your salt in cooking as well. Or and of course, many of our favorite seasoning things like tamari and soy sauce and breaks are fairly high in sodium.

So you want to just limit your use of those. And and then the other thing is to be really aware of restaurant food and eat at home more often. If you do eat out at a restaurant, just be really conscious of not adding extra sodium.

The sodium levels used in restaurant foods tend to be very, very high. And then you know, I mean, you want to you want to limit added sugars as well. So not drinking sweetened beverages and using very little sugar at home, we want I would say the limit should be 5% of calories, which is about two teaspoons, six teaspoons a day. And 2000 calorie diet.

And they'll be a lot of people say, oh, I've never used six teaspoons of sugar, but but if you have a fruit flavored nondairy yogurt, you probably get double that in one serving.

So there are a lot of foods that that you wouldn't necessarily think have sugar that do. And then you want to minimize added fat, especially solid fats.

So people that aren't completely plant based butter, margarine, shortening tropical oils like coconut oil, palm oil, palm kernel oil. And if you do use oil in your cooking, you want to keep the amount moderate and you want to select mainly mono unsaturated oils like extra virgin olive oil or avocado oil.

And then we also want to make sure we get a source of omega three fatty acids. And so, you know, alpha linolenic acid flax seeds, chia seeds, hemp seeds, walnuts are all excellent sources.

And for people with hypertension and the the the conversion of the alpha linolenic acid into the more biologically active EPA and DHA is not very efficient.

And so for someone who already has hypertension, I would recommend including a direct source of in the form of microalgae. And I would probably look at at least 3 to 500 milligrams a day.

You want a mix of BPA and DHEA and and I think those are the key things. And for some people, you may also want to include a high quality multivitamin, mineral supplements, or at the very least, vitamin D and B12.

Vitamin D is so important and very few people get enough. And so looking at most experts will recommend a 1000 to 2000. I use a vitamin D and then making sure you have a source of iodine and B12 and B12.

We're looking at a thousand micrograms at least twice a week, I would say is reasonable for most people. So that I think is fantastic. So, so many things you said I so in line with.

But I think this is a great points and I'd like to dove into the micronutrient stuff a little bit more and just speak to my own experience also with some of the things you said, which I agree with 100%.

And I really want to talk a little bit about the potassium and sodium components of that. And, you know, because higher potassium will help negate the sodium intake.

Can you can we talk a little bit about like how much magnesium, how much potassium, how much calcium so we should in the water or the amounts because honestly, I get these questions all the time.

So I know they're they're going through people's heads as they're listening. Yes, exactly. For sure. So let me see.

Key Micronutrients: Calcium, Potassium, Magnesium, and Iodine

I'm going to just pull up to make sure that I have it and the RDA for potassium recently changed and so it used to be like 4500 milligrams and now I'm just going to make sure I've got that and so so yeah, it's 2026 for 2600 for women and 3400 for men.

They decrease. So that's interesting. Yeah, they decreased it. Well, it was darn near impossible for omnivores to meet that. It used to be 4500, I think it was.

And now it's it's a little more manageable for people. I mean, a lot of vegans will be asking that three, 4000 even more range. But but certainly certainly it's not that easy for omnivores to get their muscle.

And what about magnesium in calcium, would you recommend? Yes. Or calcium mice? You know, it's it's interesting that calcium is is that the the recommended intakes are higher in North America than they are in many parts of the world.

But I still would suggest, you know, meeting the RDA of a thousand milligrams for women to age 50 for men to age 70, and then, you know, it's 1200 for women 50 plus and men 70.

Question I would still recommend getting there. And if you can't get there with a Whole Foods plant based diet, I would really look at just adding in a little bit more of the fortified foods like fortified nondairy milks using that in your smoothie instead of water.

If that it rather than using supplements of calcium supplements. I think it's better if you can if you can do it with the with the calcium fortified foods.

Absolutely. 100%. And then what about magnesium. Yeah, and magnesium. So are we. Yeah. So magnesium again, it's it's one of those nutrients that that may be one of the nutrients that that people are are lacking more than just about any other nutrients.

And it does come up for people eating plant based. But I think it's more of an issue for people who aren't eating plant based because magnesium is really concentrated in leafy greens and legumes and seeds and nuts and wholegrains and and all of these high fiber foods.

And so it's it's, you know, it's one of the nutrients that plant based eaters tend to just do better with. Absolutely. And you know, you spoke to iodine, right?

So a lot of the iodine comes in, iodized salt in. So yes, when I've had patients go on and S. O. S. free diet or salt oil sugar free diet, which is fine.

What's interesting is they if they neglect the iodine or where they live, you know, they can have some difference. And it depends on the person what they're eating if they like to eat Lori or see vegetables or different things.

But I have had a few cases of someone going plant based. They come back with an elevated t h, so their thyroid is off a bit and we have to collect a 24 hour urine iodine and it's low and we put them on an iodine supplement or we, you know, be are very mindful of what's trying to get some of these foods in.

And it resolves itself. So can you speak a little bit either to the iodine or even the zinc? Because I think if someone is really pushing way nuts and seeds because they're worried about the caloric density, you know, can we speak a little bit to maybe some of those more micronutrients as well?

Absolutely. And I mean, I completely agree with you, Laurie. The iodine thing is it people who are 100% plant based or vegan are definitely at higher risk for iodine deficiency.

And that's because some of the key sources of iodine in the diet are animal foods like fish and eggs and so forth and and dairy milk because we use iodine to clean the cows teats.

And so there's some iodine in in milk. And so when you eliminate all of those foods, there are fewer sources. And then when people go based and you mentioned people that go overseas, they often if they you know, they may eliminate salt completely or they may use these, you know, these sort of healthy salts that they, you know, Celtic sea salt or Himalayan sea salt or whatever of these more natural salts that don't have very much iodine.

And we see also we see this also in the raw foods community where people can develop iodine deficiency because they tend to use more of the natural salt. Now, some of the most concentrated iodine sources on the planet are seaweeds.

And so, you know, a 16th of a teaspoon of kelp powder provides 150 micrograms that an adult needs and, you know, a half a teaspoon of dulce or what? Or some of these other ones. But the nori she's you'd probably need one and a half or two sheets to get the 150 micrograms of an adult lead.

So you're not going to O. D. on its own with NORI sheets quite as easily as you might with help. You have to be really careful with kelp because because for a child for example, you know they're the RBA may be between 90 and 120 micrograms.

They're upper limit for a fairly small child with 200, 300 for a little older child. And so that is so easy to exceed if you're using powder. So but those are reasonable sources that could be included if you like to eat dory and then rolls and so on, then those are reasonable sources.

Otherwise you need to rely on and iodine supplements and this is so important during pregnancy and lactation because you know, iodine deficiency is the number one cause of cognitive impairment globally in children and a preventable cognitive impairment.

And so we need, you know, even a slight, you know, a mild deficiency in pregnancy can rob your child of 10 to 15 IQ points. So this is something that that we really do need to be conscious of.

And and so, yeah, I think iodine yourself is a big deal. And and then the other thing you mentioned was zinc. Yes. And zinc. You know, one of the things about zinc is that, you know, we can have adequate intake if we are consuming legumes and nuts and seeds are very good sources as well.

But we may if we eat, especially a diet that's really high in fight AIDS, we can reduce absorption by about 50%. And so even if our intake is the same as in omnivore, our absorption may be significantly lower.

And there are some mechanisms that will help to compensate and improve the absorption and all of that. But zinc is so hugely important to growth and development in children that we really need to be cautious there and and making sure because children often like to eat a start based diet like pasta, they like bread and they may not be as keen on beans and and nut butters and so forth.

Zinc, Phytates, and Iron Absorption

So we really do need to be conscious of making sure that those foods are plentiful in the diet. And if we provide a multi vitamin to a child that I would say finding one that improves zinc would be probably a reasonable idea.

And yeah, and then in adults that's, you know, it's iron zinc protein. These foods are really important sources beans, lentils, chickpeas, tofu or other foods and nuts and seeds.

Perfect. And you mentioned the fighting, so someone doesn't quite understand what you mean by that, by decreasing absorption. Could you just mention what that means and how.

Oh, yeah, that issue. Yeah. So fight, hate are really the staunch form of phosphorus in plants and and fighting at the fighting. It's actually can have some some protective qualities.

They they may be anti-cancer they are anti-inflammatory but they can reduce the absorption of iron and zinc especially in and so there are a lot of things that we're where we see this being problematic is in countries where they tend to eat a predominantly flatbreads that is a staple in the flatbreads tend to be quite high in fighting or in diets where people are sprinkling wheat bran on their food.

And wheat bran is a very source of supply chains. And we used to do this years ago. You know, you'd sprinkle it on your cereal, you put it in your vegetables and all sorts of things, and we shouldn't be doing that.

We get enough fiber. We don't need to be sprinkling bran on our food, which is like a little fight bomb. And and so basically are lots of ways of reducing fighting.

So we can we can soak our beans and grains, we can sprout them, we can leaven them. You know, we think breads rather than flatbreads, we can even cook them.

Cooking will help to get rid of some of the fighting. So there are we just just food processing techniques even blending can help to make the nutrients more bioavailable.

So all of these things can be helpful. That's awesome. What are your favorite sources of zinc in the diet? Well, for me, it's it's I use a fair number of cashews because cashews are quite high in zinc and pumpkin seeds as well.

But but I get cashews are one of the most versatile of the nut and they, they just you can make a pear cashew cream that replaces whipping cream. You can make a white sauce with cashew base for a creamy sauce.

Just they they can you can make a cheesecake are the cashews so they're they're really quite versatile and they're quite high in zinc and then pumpkin seeds are amazing in terms of iron sink.

And, and so I would say they are definitely a go to snack, sprinkle them on your breakfast bowl on your, on your salads and so forth. Pumpkin season cashews are the two staples in my pantry, just specifically for those reasons, too.

But another thing I just want to touch on time maybe a little bit outside of the hypertension thing, but you touch upon is iron and I found it is such an important thing to be looking at because when I have women in particular, including men, but mostly women whose ferritin is low, so many times they'll check just iron or iron saturation.

It might be normal with their ferritin is below 50. I'll point visitors. Maybe they complained about hair loss or restless leg syndrome or just this. They can't quite figure out the fatigue thing they were.

Well, we took ferritin and we start working on the iron. Sometimes supplementation because women, obviously men with men seasons up, that is such an important thing to be paying attention to.

I mean, it can change people's dramatically the quality of life and they couldn't quite figure out what's going on. So could you speak to like higher and rich foods?

Like how can we have issues or option? Because I just it's really important. It's really important. And there again, you know, the legumes are so critical and some of these seed seeds are even more concentrated in some of these trace nutrients than than nuts.

And they're more concentrated in some of the central fatty acids as well. But in terms of iron absorption, we see reductions of 50 to 90% with with high phytate intake and high intake of some of the polyphenol compounds like tannins in tea.

If you drink a cup of tea with your with your dinner, you could reduce iron absorption by 50 to 90%. So so keeping tea separate from the meal is, is a very reasonable choice.

And, and then in terms of enhancing absorption, eating something with vitamin C with the meal. So and we do this naturally when we're eating plant based, we're a fruits and vegetables, of course, are the sources of vitamin C.

And so always including that if you're having a bowl of oatmeal to have an orange with it or some strawberries on top or something like that. And and then there are a few other things that are interesting.

So, for example, allium vegetables like garlic and onions carotenoids, these can actually help with the absorption of iron as well. Organic acids in fruits and vegetables can help with iron absorption as well.

And so those are all helpful. And then cooking in cast iron, you actually some of that iron in the cast iron gets into the food, you increase the iron concentration in the meal by doing that.

So those are all things to be aware of. And then the other thing to be aware of, especially for people that are just beginning the transition towards a more plant based diet, what people often do when they're when they're switching from a completely omnivorous to a more plant based diet is they swap out meat for for dairy.

And so they'll have pizza and macaroni and cheese or lasagna with cheese or grilled cheese sandwiches, these kinds of things. And dairy products actually inhibit the absorption of iron.

So they're very low in iron. So when you replace meat with dairy, you're replacing a high iron food that has highly absorbable iron with a low iron food that inhibits the absorption of iron.

It's kind of a double whammy. And so we need to be careful not to replace meat with dairy, but rather replace meat with legumes. That's that's key to preventing iron deficiency.

And if you've ever had a small child, your doctor is checking, you know, why are they taking these little ones for iron is because many times they're consuming a cow, dairy based milk, which, like I've mentioned, can cause not only that, it can also cause some micro bleeding within the intestine.

So, you know, it's it's a really interesting conversation to have a slight decrease your milk consumption because this is causing this issue like exactly why would I be recommending it at all to begin with?

Iron Deficiency in Children and Closing Remarks

Well, yeah. And in the first year of life, that's why milk isn't recommended at all because of that potential for, you know, it forms a hard curd and can cause micro bleeding.

And so that's yeah. And for young children, I think it's it's really important. A lot of people want to do everything all natural but iron deficiency in infancy, toddler years can actually cause cognitive impairment and can be a really significant cause delays for children.

And so we need to make sure that we've got reliable sources. And one of the easiest ways of doing that is to include an iron fortified infant cereal because the RDA for an infant from 7 to 12 months is 11 milligrams, it's eight milligrams for an adult man.

Good luck getting 11 milligrams in a 7 to 12 month old child with Whole Foods. It's just not possible. Even even you know, baby beef I think it's 79 tablespoons.

You'd have to feed a child to meet the RDA for 11 milligrams. So you know, and for lentils I think it's 20 some tablespoons. It's better for lentils than it is for beef.

But but realistically, if you are really trying to meet that RDA, it is a much easier thing to do if you've got some iron fortified infant cereal or if you're absolutely opposed to that and you do a regular cereal you may need to use some iron drops at that stage.

Yeah, absolutely. I feel like there's so much more we could talk about, but I will enter. Thank you so much, Brenda. This was fabulous and I think one of the highlights of all the conversations I've had so far for the summit and I really appreciate your time today.

Well, it's my privilege and I'm so happy to meet you, Laurie. I look forward to our next interview Absolutely. Thank you everyone for listening.