Diet Changes and Immune Health

A highfat meaty diet harms the function of your white blood cells, harms the function of mitochondria. Their diet has been low in vitamin C, low in folate as I mentioned, and low in many other things. Low in polyphenols. Okay, you change your diet overnight. Your white blood cells get stronger. You are suddenly nourishing them on a plant-based diet.

>> Today, we're talking about 14 days, two short weeks, and just how much your health can change. And this conversation is going to be steered by our friend, bestselling author, president of the Physicians Committee, Dr. Neil Barnard.

Thanks for being here, my friend. Great to be with you today. >> I wanted to talk to you because immediately when I saw this study looking at the standard western diet and the traditional African diet and how much people's biome and their health and all kinds of markers improved in just 14 days. I was really impressed. I wanted to get your thoughts on it. Are you familiar with the study? >> Yeah, it's uh quite an amazing study. It came out in Nature Medicine. It's great journal. Um and it looked exactly at what you're describing. Most of us have this idea that if you're going to make some diet changes, you'll get sort of a little result and it'll be really gradual and 18 months from now, you'll have lost some weight and so forth. That is not what they found. Uh what they did is they they they took advantage of the fact that in Tanzania, as in many many many countries around the globe, there are some people who adhere to a traditional diet, a relatively traditional diet, which in Tanzania really emphasizes plant foods in a big way. This is not the Dairy Queen, Velvita, KFC kind of diet. However, there are also some people who have westernized a lot and they are eating dairy products and and meat and so forth. And so what the researchers did is for just a two-week period, they had people who had been following a western diet and they had them following what they called the African heritage diet, which was largely plant-based. And they also had volunteers go the other direction. if they've been following a healthier, more plant-based diet, what if they adopted the u the more western diet? And the first thing they saw is that people who went from a more from a healthier diet to the western diet gained about 2.6 kilograms. So, what's that? Five and a half, six pounds over a twoe period. I mean, they gained weight really fast. Um, the second thing is they looked at markers of inflammation in a whole variety of ways. There's a million ways of looking at this. and their bodies became much more inflamed which uh mean simply means that traveling around in your bloodstream are many different chemicals that are going to be harmful to the body and are produced by uh produced as a result of the diet and exactly the opposite happened when people went the other way to the healthy diet. So Chuck it was a big study um it does it does show the diet makes a difference but Chuck what you said is exactly right is that it happens really very fast.

African Diet Study Results

I'm I'm wondering that the five and a half pounds or so that was gained over those two weeks, was that all fat or was there additional sodium causing bloating and and fluid retention? Do we know where that weight came from?

>> It's mostly fat. Um what you're saying is right that if you're if you're greatly increasing sodium, you can hold on to a pound or two of water weight. Um that's not really what this was. This is fat. It's very very easy to gain fat.

Um, your body doesn't when you absorb fatty foods, your body doesn't take all that fat and break it down and so forth. Your body will absorb it with relatively little um little metab little metabolic change to it. And in fact, it's absorbed in the first 40 cmters of your digestive tract. So gaining fat is really easy to do. Your body says, "This is my storage. In case there's a famine somewhere, I'm ready. I'm packing in the fat." And of course, that's a that's a a mechanism we all have, but it's not one that we particularly want.

>> The researchers here, in addition to higher fiber foods, the plant foods you've been talking about, they also keyed in on fermented foods. Uh what role did they play in terms of reducing that inflammation?

>> Yeah, this is remarkable. Um there's a a traditional uh fermented food in consumed in the Kilamanjaro region of Tanzania. Um and it's it's actually a banana based beverage. And it as you said it is fermented and so they uh did a twoe trial just of adding that and they showed that it has therapeutic benefit too in the same direction that it's an anti-inflammatory. And so we think about that kind of effect if a person is having more vegetables and fruits in general. We do see a good inflammatory effect of that. If a person eats more meat, dairy products, we see a pro-inflammatory effect of that. And but this traditional banana based beverage when people consumed a fair amount of it had an anti-inflammatory effect. >> Interesting. Because do you think that you would get the same kind of benefit if you know somebody were to eat my favorite fermented food which is kimchi? Do you think that that would be kind of a universal benefit? >> Well, yes, but I think you're putting your finger on two different things, Chuck. Both of which are important. The first is the fermentation process. The second is the food itself. So the food itself, if it's kimchi, what are you having? You're having you're starting with a vegetable. Um you're starting with I guess it's cabbage if it's it becomes kimchi. Um if I understand right, um and other things that may go into it, but it's it's plant-based and then the fermentation sort of allows it to be tr transformed in a healthful way. In this case, they started with another food. It was a fruit. It was banana. Banana is much higher in natural sugars as well, but that's easy for the fermentation process to to to support the fermentation process. So, it works kind of the same in both ways. But the thing I should mention is that each food has its own signature. So, if I eat more bananas, it'll have one effect on my gut microbiome. If I have fermented bananas, it'll have a slightly different effect. If instead I have lentils or beans or fruit or green leafy vegetables, they all have their own contribution to play.

In the same way as if you look at a prairie, all the different wild plants that grow there have their own effect on the soil. And so when we eat a a wide variety of plant-based foods, it gives us the best microbiome, the best anti-inflammatory effect. >> Here's something else interesting in the study is that researchers in addition to pointing out uh the inflammation, uh they also talked about the immune cells actually becoming less effective um when a person switched over to the western diet. I find it very interesting as well that in just a short amount of time your immune system can become weakened depending upon the diet that you eat. Uh does that come as any surprise to you?

>> Um we have seen this in the variety of models. Um and when we talk about the immune system to be concrete what we're talking about is in your bloodstream are white blood cells. They're escorting all the red blood cells. The red blood cells carry oxygen. It's why they're red. that red hemoglobin grabs the oxygen, carries it from your lungs to the rest of your body. You need that. Um, so in and amongst all the red blood cells are white blood cells. And the white blood cells are the security guards. They're the centuries.

Fermented Foods and Microbiome Benefits

If they find something foreign, something that doesn't belong there, they can do a number of things. They can actually swallow it like the blob um and uh grabbing a hold of a virus and sucking it in. They make antibodies which are little torpedoes that they can use to knock out a bacterium or a virus or tag it to be absorbed by another cell. And that's what the immune system does. Here's the problem. Those white blood cells are dramatically affected by your diet. I mentioned earlier that if you eat fat, that fat goes into your bloodstream really rapidly and it's stored very rapidly. White blood cells cannot work in an oil slick. They just can't. And if you eat a lot of fat, your white blood cells function is impaired. And we've even seen this with test tube studies, take white blood cells, put them in a test tube, um, and you add a little bit of fat to it. And you notice that beforehand, if you introduced, say, a cancer cell that the white blood cells have to recognize and gobble up and destroy. Once you've added that fat to the cell culture, the white blood cells are impaired. they are not as good at at engulfing and destroying the cancer cells. So soldiers don't work well if they don't get good uh good good provisions and the same is true of the of your little microscopic army that we call white blood cells. And one other piece of this chuck just to to to bring in there. It's not just the bad stuff. It's not just that fatty foods can be harmful. If you look at a typical animal-based diet, it is missing it is missing a lot of the things that you really want in a in a in a plant-based diet. For example, there's no vitamin C.

Vitamin C is an antioxidant. Meat doesn't have it. That's why the early explorers in the what 1500s or 1600s got scurvy. Um they didn't have vitamin C.

There also you don't see folate. Um the folate, which is this B vitamin that's so important for many in in many ways. Well, the name folate comes from foliage, which tells you where it comes from. So, a meaty diet is not just too high in fat. It's deficient in the micronutrients that your white blood cells need. >> Let's flip the script and talk about a

positive impact as well. We were just talking about how quickly the immune system can be suppressed here, but now let's talk about those who transitioned from that western diet over to the standard African diet or the traditional African diet. And I'll read to you verbatim an article that was published in medical news today. It said certain immune and metabolic changes remained 4 weeks after the intervention. >> 4 weeks after, you know, they just changed the way. What What is it about eating in that healthier traditional African diet in in that sort of way that the body can can hold on to those benefits for so long as opposed to going the other route and seeing everything just plummet basically overnight? >> Yeah. Well, keep keep in mind what you're doing. Um, a person's been eating an unhealthy diet. Their diet has been low in vitamin C, low in folate as I mentioned, and low in many other things.

Low in polyphenols, um, high in fat. Okay, you change your diet overnight. Um, your white blood cells get stronger. You are suddenly nourishing them on a plant-based diet. The nutrients they've been looking for. So, you're actually constructing healthier cells. The cells that you have have the nutrients they need to work. And within the cells are the mitochondria, which are the little furnaces that keep them going. and they can function more effectively when you get the fat out of the diet. All of these things have been shown to occur very very rapidly in both directions. A highfat meaty diet harms the function of your white blood cells, harms the function of mitochondria within oh you see this within 72 hours, 3 days, 4 days, 5 days. You you see that result.

The reverse happens rapidly as well. >> All right, let's dive into specific examples of the food. you gave some up at the top, but uh the researchers here and in this article in medical news today, they they pulled out some of the more common ones. We'll start with the bad first. On the Western diet, these are the ones that they identified as being highly inflammatory.

White Blood Cells, Mitochondria, and Nutrients

Processed meats, which we've talked about ad nauseium here on the show, pizza, which I don't know if this was the case for you, but for me growing up, pizza was actually thought of, Dr. Barard, as being healthy because it incorporated a lot of different food groups. Did you hear the same message growing up? Well, um, tell you in Fargo, pizza was not a thing at all until I was about maybe 13, 14 years years old and then this amazing foods came in. Um, so anyhow, um, but but but it was kind of the same vibe as what you were describing. It wasn't a big hunk of meat. It was, you know, a crust that did have some veggies on it. And at the that time that layer of dairy products, cheese was thought to be a good thing. Um, not so. It has turned out, of course, that dairy and particularly cheese are the biggest source of saturated fat in the diet. And that is one of the real great ways to poison your white blood cells. >> No, no question. They also say French fries, sorry, even though that's a plant-based food, not going to be doing you any favors, especially if they're fried in beef tallow these days. And uh fried chicken, a lot of people say chicken's going to be a healthier option. Not the case. Especially, I'm guessing if it's fried.

>> Yes. But the chicken itself starts out as an unhealthy product. Keep in mind what what did how do you make chicken? You take something healthy like corn or some other feed grain. You feed it to the chickens and the chickens uh transform it into muscle or into eggs. And so in doing that they add cholesterol. They transform the fat into into a much higher saturated fat and all of the fiber is gone. All of the the um micronutrients are gone. And by the way, Chuck, let me just mention when this study came out, it was in nature medicine. Just came out what a week ago, something like that. Um, I have to say I was really struck to see it because uh, Steven O'Keefe and his team at the University of Pittsburgh and working with other researchers in Toronto did almost an identical study, but in this case it was in South Africa.

And what they did is they took men in South Africa who were eating a traditional rural diet that was loaded with root vegetables, loaded with beans and other legumes, and they asked them to model the diet of Pittsburgh for two weeks. They took men in Pittsburgh, African-American men living in Pittsburgh, and they said, "We want you for two weeks to eat the rural South African diet." And Chuck, exactly the same. you saw weight changing if people uh went from the more plant-based diet to the the meaty diet. The weight went up and went the opposite way on the the the when people went to a healthier diet. Uh cholesterol levels are affected. Blood pressure can come up really quite quickly and the microbiome changes very very very rapidly. You suddenly get angry bacteria in your gut if if you're going to be eating a western diet. >> I would love to see what the traditional quote Pittsburgh diet is. What what is unique about Pittsburgh's diet? My grandma was from there. I've just never spent much [laughter] time.

>> It it was just that you know Stephen O'Keefe and his team are in Pittsburgh. >> Um and so so they they picked Pittsburgh and then they worked with researchers in rural South Africa but but Dr. O'Keefe came to um the international conference on nutrition and medicine and presented those findings and everybody was blown away not just by the effect that you see from following going from unhealthy to healthy or healthy to unhealthy but the rapidity of it um the fact that you could see this in two weeks. Now having said that check there there's one other thing though um some things do occur very rapidly but other things when we see for example weight loss let's say a person's had a lot of weight to lose and they may they go on a lowfat vegan diet and it's beans and vegetables and fruits and whole grains and they really keep the oily foods out they're going to lose weight but what they discover is that um after the first 16 20 22 weeks something like that the weight loss might slow but it doesn't stop and the reason I mentioned This is although you do see a very rapid effect, you also see a continuing effect. We followed people for more than two years after an acute study, 14week study. We tracked them two years later and we kept seeing weight loss going on and on and on and on and on. It was much more gradual, but that was the coolest thing because people were used to following a diet, stop the diet, the weight all comes back. In this case, what we found is people learned about a vegan diet, they said, "Totally sustainable. I'm not hungry. I can really do this. And as they keep with it, the weight just kept going off and off and off and off. Now, you can ruin it. You know, you can bring a lot of fatty stuff in there. You know, greasy onion rings and, as you mentioned, greasy French fries, that fat that gets added can create problems. But if we're not doing that, then the benefits keep going.

>> That said, I would think that, you know, fatty, greasy French fries.

Western Diet Foods to Avoid

Isn't there research out there that shows us those French fries uh less detrimental to a person's health than say chicken fried steak? [laughter] Yeah, but you're setting a pretty low bar there, Chuck. Let me say really. Um, yes. And you're right. I mean, French fries, some people would say, depending on the kind of cooking oil you used and and how much ketchup you added because that's your source of leycapine, right? Um, that that, you know, you could do worse. That said, that innocent potato really didn't want to go into that hot boiling grease and soak it all up. So, you're you're you're better off with a potato itself without all that added grease.

>> Amen to that. uh just to kind of put a bow here on uh the diet portion of this conversation. The traditional African diet you mentioned again some of the foods at the top uh here selectively they talked about green vegetables legumes, plantains, uh root and tuber crops such as sweet potato and cassava and then ancient grains like millet and sorghum and then black tea interestingly not not the fermented drink that we were talking about but black tea. What is it about black tea in particular that you think is so beneficial to a person's health? Um what we think it is is polyphenols. Um there polyphenols is a whole group of of chemicals that are in a number of foods. You see them in black tea. You you also see some of them in green tea. Um and you'll see them also in a number of fruits um colored fruits as well. So that that's probably what it is. It's probably probably not the the caffeine. Um, let's take a question here from Matthew who's watching right now and he's wondering, okay, like this all sounds good guys, but are there any consequences, potential consequences, consequences of losing some nutrients once you shift away from that standard western diet and go to a more traditional diet like was discussed in the study? >> What am I going to miss when I'm no longer eating meat? >> Miss meat, miss dairy. I like are you going to have anything that you're not going to be getting? And B12, you can't say B12. That's been covered to death. >> Okay. Well, but that's important. Um, what people typically think, and you've heard this at least 100,000 times, is people will think, well, I'm not getting protein because I'm not eating animal muscle anymore. And that for anyone who hasn't heard this before, it's important to understand that there's a surprising abundance of protein in beans, even in vegetables, in grains, and some in fruits as well. U and so you're not going to become protein deficient as long as you consume any normal variety of plant-based foods. Um the the in fact, if a person ate nothing but broccoli all day long, they would get roughly three times their daily protein need. Now, I'm hoping you don't eat just broccoli, eat a variety, but you're going to be fine. Um, but but really Chuck, I think people have to think about planning for good nutrition kind of whatever their diet is. A vegan diet, a plant-based diet is the healthiest diet there is. And protein is is going to be a non-issue if you're eating a variety of plant-based foods. Um, calcium people think about uh you need a maybe 700 milligrams of calcium per day.

That's lower than the government says, but that's the true amount you probably need. You're not getting it from dairy anymore. You're going to skip the dairy.

So green vegetables, bring them in big time. They're great for calcium. Beans, too. vitamin B12, you should supplement. But you know what? If you're a meat eater, you got to think about these same things. A lot of meat eaters are low in calcium. They're they're low in B12 for various reasons. And so, you want to think about these things, too. But, um, none of these are reasons to avoid a plant-based diet. Plant-based diet gets you started with the the most nutritious foods, the best micronutrient profile, uh, the highest fiber content, and it's good in every way. >> Yeah. And and let's just kind of be honest here. It's it's easy to kind of like pick out and say, well, you know, plant-based diet could be risky because of the B12 thing. Um, and and obviously people they will have concerns about protein probably until the day that they die. But I think that by and large, if you were to look at, you know, say the the profiles, the the biomarkers of anybody eating any sort of diet, odds are there's going to be one, two, three different nutrient deficiencies that they have anyway. I don't think anybody out there is really eating that super healthy diet that's giving them everything that they need and they're pristine and perfect all the time.

Plant-Based Nutrition and Deficiency Concerns

And that's why we get that phrase overfed and undernourished. Would you agree? >> Our friends at Harvard developed something called the alternate healthy eating index. And they look at what people are eating from day to day. And you can take a group of folks who think, "All right, I go to the gym. I plan my meals. I'm eating healthfully." And you can rate their diet for its healthfulness. And that's a mixture of are you getting the vitamins? Are you getting the minerals? Are you getting the macronutrients and are you also getting more or less of bad things like cholesterol and animal fat? And they come up with a number called the alternate healthy eating index. We have tracked that number in individuals who sign up for a research study and they go from what they thought was a healthy meaty diet to a healthy completely plant-based diet, a vegan diet. And that ai that healthy eating index goes right up because suddenly you're getting the bad stuff out. There's no cholesterol in your diet. there's no animal fat, but your vitamin intake goes up, your fiber intake goes up, your healthy complex carbohydrates go up. So, yes, everyone should plan their diet, and yes, everyone's got uh areas where they're stronger or weaker, but on a plant-based diet, you are miles ahead. >> Uh you may not have the answer to this, but somebody watching right now is wondering if we have the specific demographic of the people who were involved in this study. I I have it in front of me if you're not familiar. I know it's young men in the Kilamanjaro region, but do you have the specifics in front of you? Um the only thing I remember is it was it was all men. Um and they were supposed to not be overweight. They were they're trying to pick people who are at a healthy body weight. Uh there were a couple people in the study who were modestly overweight.

But um by and large it was a healthy population. >> Yeah. With a median age of 26, 23 rural men, 22 urban men, and then uh both of which uh were kind of adop uh switched over with their diets. And then there was also uh 22. They don't say whether or not they uh were rural or urban. Um but then added that fermented drink there as well. So that's what we got.

>> Yeah, that was that was those were pretty much uh individuals who were eating more or less the urban diet and they added that banana fermented banana drink to it to see if it could in some ways humiliate the effects and it was beneficial. >> I'd be curious to try that banana drink just because I like bananas. Why not? Um do you think that we would have seen similar results uh if this survey or the study were to have included women?

>> I think it would have been very similar. Um I think it's always good to include um you know a wide diversity of people obviously. Um sometimes studies have focused on one group or another uh for a variety of reasons. They didn't for example on a short-term study they didn't want uh menstrual cycle changes to affect um their biological markers. So they might have excluded them for that reason. But um whatever their reasoning is frankly it's good to to include everybody in research studies and see see what their effects may be.

>> So we're talking about a young population here. Do you think that also the results would have been similar if somebody were instead of being in their mid20s were in their mid-50s, mid60s? >> Often more dramatic um we see because first of all people have tended to gain weight and the more weight a person has the more rapidly comes off when people jump on a healthier diet. Um so we often see those changes. We also see metabolic slowing when people are older. They're they're not burning calories as fast and that has nothing to do with age. has all to do with the accumulation of fat inside their cells causing their mitochondria not to work very well and that too will will change rapidly. The gut microbiome changes very very rapidly. Um you see blood pressure changes, cholesterol

changes, blood sugar changes. All these things occur pretty quickly but but there's a lot of individual difference. For some, you will see, you can bring in a person who's got diabetes, type two diabetes, high blood sugar, they're on a lot of insulin, they go on a low-fat vegan diet, and in some cases, their blood sugar plummets within the first week they're becoming hypoglycemic um because of the they're now on a healthy diet and they're also taking their insulin. Um, but there are others where it takes a longer period of time. So, everybody's different, but you don't want to tie one arm behind your back by doing anything less than a really perfect diet. So, you know, use a use a healthy plant-based diet along the way.

>> All right, big picture question here to wrap things up. As we see the Western diet continue to spread throughout the world, what do what do you think the global ramifications are as people drop their traditional way of eating for this western influenced highfat, greasy food kind of diet?

Oh, I got to tell you, Chuck, um, we're seeing two different trends. Um, one trend is that there are more people than ever who are following healthy vegan diets.

Long-Term Health, Aging, and Lifespan

Um, and and at younger ages and they're seeing the benefit and we've talked about this a lot, but there is also this other trend of people who haven't gotten that message. And this there are enormous it's an enormous number of people who are adopting this diet and they're adopting it in other countries. And it's not necessarily just in countries with economic privation.

even in places uh in Europe and in the wealthier parts of China for example you're seeing westernization occur as well and the effects we're seeing a couple of different effects number one the metabolic diseases become more common more weight gain more diabetes or high blood pressure more cardiovascular illness secondly we're seeing more malignant disease two types in particular gastrointestinal problems uh like colarctal cancer um and the other's hormonal issues like breast cancer and prostate cancer we're seeing both of those and then the big trend that I am frankly very troubled by is that you see all of these problems occurring in younger ages. So while older folks are not seeing a huge increase in colorectal cancer in young people here in the United States we're seeing big increases in colarctal cancer because you thought our diet couldn't get any more western than it is well it's amazing kids are now eating bacon and sausage and more cheese than ever and it's all related to marketing. So th those are trends that I expect to continue. Uh that said, when people have information, when they have knowledge, when they have the the ability to make good choices, all of these things can be reversed. Plus, you'll see a reversal of other things that you hadn't thought would relate to diet, like u mood problems, um uh probably even um Alzheimer's disease risk. We would guess we would probably have quite a large reduction in all of these risks at the same time. We're not going to live forever, but we really should be putting a healthy diet to work rather than going down the other pathway.

>> Yeah. And that, you know, brings into the conversation the idea of health span versus lifespan. Obviously, as you said, we are not going to live forever, but wouldn't it be great to maximize the number of years that we have here so that we continue to feel like we are at our peak for as long as we possibly can be? And I think that that is a reasonable thing for anybody to strive for. Dr. >> [snorts] >> people will sort of graph out your quality of life and you know when in the United States when a person is 18 or 20 let's face it you're immortal you know as far as you're concerned you don't have heart disease at least not that you know of um you're not at risk for cancer you're feeling great but pretty soon around that time people start to gain weight that they didn't want to have and so if you look at a population that's maybe around 30 or 35 they're gaining bit of weight the doctor says your cholesterol is a little bit high. I'm going to start you on a statin pretty soon if it doesn't get better.

Um, their blood sugars start to come up and you see diabetes starting to grab more and more people. So, you see these metabolic concerns coming up, digestive issues come in a big way. And then by the time people reach about 50, you see major increases in all of these issues. And so then people are on more and more medications, something for your blood pressure, something for your cholesterol, something for your diabetes, something for your digestion, something for your mood. And all of these things take our quality of life down. So if I draw a curve of your quality of life, it's going just gradually downward, downward, downward, downward, downward until you end up dying and in some cases prematurely. What we want to do, at least what I'd like to do, is have what I'm going to call

sort of a box shaped life. So you stay healthy and you remain healthy. You know, you're not declining, you're just staying healthy. And then at some point, at least for me, I'm intending to die in a flaming inferno in the Grand Prix of Monaco where my car hits the wall. I explode at age 87 as a world's oldest Formula 1 driver. And, you know, that's going to be it. So, let's have, you know, a box shaped life, maximally healthy, and then, you know, when you get your celestial reward, it comes quick. >> What a way to go. 87 racing in Monaco.

Hey, man. There are there are worse ways. There are worse ways. [music] >> [music]