

INTERVIEW TRANSCRIPT



Kristi Funk, MD

What Everyone Needs To Know About Breast Cancer

Kristi Funk, MD, is a board-certified breast cancer surgeon, and an expert in using innovative and minimally invasive treatments that work. She's the author of the bestseller *Breasts: The Owner's Manual* and co-founder of the Pink Lotus Breast Center. Pink Lotus fuses state of the art screening, genetic testing, diagnosis, and treatment with preventive strategies and holistic care. Dr. Funk has helped countless women successfully navigate breast cancer issues, including well-known celebrities, such as Angelina Jolie and Sheryl Crow. Dr. Funk's research and work have led her to become a passionate advocate for using a healthy diet and lifestyle to reduce cancer risk. She wants to keep you healthy, well, and out of the operating room.

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Ocean Robbins: Welcome to the Food Revolution Summit, where we explore how you can heal your body and your world with food.

This is Ocean Robbins, and I am joined by my dad and colleague, John Robbins, in welcoming our guest, Dr. Kristi Funk.

Kristi Funk, MD, is a board-certified breast cancer surgeon who's an expert in innovative and minimally invasive treatment protocols that work. She's the author of the bestseller *Breasts: The Owner's Manual* and founder of Pink Lotus Breast Cancer Center. Pink Lotus fuses state of the art screening, genetic testing, diagnosis, and treatment with preventive strategies and holistic care.

Dr. Funk has helped countless women successfully navigate breast cancer, including well-known celebrities, like Angelina Jolie and Sheryl Crow.

Dr. Funk's research and work have led her to become a passionate advocate for healthy diet and lifestyle. She wants to keep you healthy and well and out of the operating room.

So now, Kristi, my dad and I are so grateful for your work and for this time with you, and now for the interview, I'm going to hand it over to my dad, John Robbins.

John Robbins: Well thank you, Ocean, and thank you, Kristi, for being with us today.

Dr. Kristi Funk: Thank you both. I'm excited to be here.

Reducing the Risk of Breast Cancer

John Robbins: We're excited to have you and to bring your message to our audience, who I know will benefit greatly from your wisdom and your caring.

I've read your marvelous book, and in it, you write that women make choices every day that bring them closer to breast cancer or move them further away from it and that every woman has the power to reduce her breast cancer risk in achievable and dramatic ways. And this is all backed up by rigorous scientific research.

Dr. Kristi Funk: Absolutely.

John Robbins: And you cite, specifically, medical research that tells us that if women before reaching menopause get regular exercise, don't smoke, don't drink much if any alcohol, and, importantly, choose a diet that shifts away from meat and dairy toward whole foods, plant-based eating, then their odds of getting breast cancer are slashed in half. And for older women, breast cancer risk drops by 80%.

Kristi, this strikes me as extremely important information for women to have. Can you elaborate?

Breast Cancer is Not About Genetics

Dr. Kristi Funk: Yes. This information to me is revelatory for the majority of women and all people on earth. And why is it so dramatic and shocking is simply down to this one fact: Most people believe that breast cancer is completely in the hands of genetics or fate. It's either going to happen or not. And the majority of people will say "Oh, well you know, breast cancer doesn't run in my family, so I'm not at risk for that." And nothing could be

farther from the truth.

So, in point of fact, only 5 to 10% of all breast cancer can be attributed to an inherited genetic mutation, such as BRCA or "bracca," which people are familiar with. There's a host of other gene mutations you can inherit, but altogether, all those mutations account for less than 10% of the breast cancer we see on earth. In fact, if you look at all women diagnosed right now with breast cancer, 87% of them do not have a single first degree relative with breast cancer.

So, if we can't blame our parents and our inherited genes, what can we look to as the cause of this epidemic that affects 1.7 million women every single year?

How Daily Choices Impact Breast Cancer Risk

And what I've found through extensive research over my two decades of being a breast cancer surgeon now, is that, as you said, John, we have control with every daily choice we make — predominantly, and quite frankly, I think most easily — through our diet and nutrition choices, but also through alcohol, exercise, obesity, hormone replacement therapy, emotional stress, and environmental toxicities. Those are the big boulders on the scales of life that tip you toward cancer or away depending on the choices you make.

John Robbins: Well, it's a fact that some women who have very healthy lifestyles, who pretty much do all the things that you advocate and who don't seem to be at heightened genetic risk — at least as far as we know — get breast cancer any way in a few cases. And there are also other women who may smoke, they may eat poorly, they may live sedentary lives, they [LAUGHS] kind of may do everything that would seem to be contraindicated, and they don't get the disease. I realize these are the few, not the many, but they do exist.

Dr. Kristi Funk: That's true.

John Robbins: What do you say to people who use this fact as a justification for continuing to live in unhealthy ways and to eat less than healthy foods?

Dr. Kristi Funk: I would suggest that we look at the causation of breast cancer as a bell curve. So, you've got this 5 to 10% at the one end that I said was attributable to genetic mutations, and then we go up and over our big bell, and on the other end, we've got another 10% or less that do everything in life right. They've been vegan since birth; they exercise like crazy; they are stress-free and zen-ed out, and yet it still happens to them, and there's no mutation. And then on the flipside, like you said, we've got someone doing everything that we consider "wrong," and they live to 102.

So, these edges of the bell curve... If I gave you a gun that has spaces for 10 bullets, and I load it with eight bullets, would you pull it? Because those eight bullets I can control through nutrition and exercise and paying attention to a healthful lifestyle. The other two, the empty chambers, if you want to take a chance [LAUGHS] that you can explain yourself with those bullets, go ahead.

But I'm focusing on the vast majority of women on planet Earth. Literally, if we eliminated 80% of all breast cancer on planet Earth, that would translate into tens of millions of women over the next few decades.

Lifestyle Changes for Women's Health

John Robbins: Which is an enormous advantage and benefit, and I think their health would improve in other ways as well. I mean, the same lifestyle choices that you advocate to reduce so dramatically — breast cancer risk

— do those same steps, those same principles, those same lifestyle actions have beneficial effects on women's health in other ways?

Dr. Kristi Funk: Undeniably. Yes, yes, yes. So, you have to think about what these lifestyle and dietary changes do inside your body. Or simply to alter the micro-environment. The literal fluids and cells that your own cells bathe in. So, if that micro-environment is crying out “anticancer,” it's also crying out “anti-inflammation” and boosting immune system function.

And so, these lifestyle changes lead to not just a lack of breast cancer, it's a lack of all cancers, but also lower cholesterol, better triglycerides, perfect blood pressure leading to fewer heart attacks, less Alzheimer's; you have less diabetes; your joints are painless; you have great bowel movements and clean lungs.

So this really radically reduces — if not completely prevents — the major illnesses that lead to chronic, life-threatening disease.

John Robbins: Which is such a wonderful thing, that the same steps — the same dietary choices, the same lifestyle principles affect so many systems in the body in such a positive way.

And yet, as you make the point... One of the most dangerous falsehoods circulating in our society is that your diet doesn't impact breast health. And, I've seen polls that show that only 23% of American women are aware that there are any dietary steps they can take to lower their chances of developing breast cancer. And among American women with less than a high school education, only 3% are aware that what they eat has any effect on their breast cancer risk.

And if the idea that what we eat doesn't affect our odds of developing cancer is as widespread as it is, and it's completely bananas [LAUGHS] and wrong, as you say it is —

Dr. Kristi Funk: [LAUGHS] Right.

Diet and Breast Cancer

John Robbins: — then Kristi, what's the truth? Just how important is what women eat to their breast health?

Dr. Kristi Funk: I think what women choose to eat is so inextricably tied to breast health that every single time a woman lifts fork to mouth, she should look at what is on that fork. Because she's not only affecting her breast health, but as we mentioned, all aspects of her health in terms of medical conditions, but also her emotional well-being and her availability for all the people in her life whom she loves. Because food has that power to affect estrogen levels and growth factors and immune system function and inflammation and all of these things combine and collide in our bodies either for our benefit or to our detriment.

And it kind of just makes intuitive sense, once you say it out loud. What do you think your heart muscle cells or your brain cells are going to have at their disposal to use as fuel and to sustain a healthy cell cycle as these cells replicate throughout our lives if not for the food we're putting in our mouths, chewing, and swallowing, that then becomes nutrients that get absorbed into the bloodstream and then course throughout our bodies, nourishing and bathing these cells. What else are our body's cells supposed to use except for the food we chew and swallow? They don't go to a store. [LAUGHS]

John Robbins: That's a great point. When the food that we're eating is affecting our hormone balance then it's going to affect our mood, it's going to affect whether we're depressed or upbeat, whether we are resilient

emotionally or not, whether we're mentally clear or not. It's going to affect our ability to give to the people we love from a cup that's full rather than from a cup that's empty. And I think that's really important.

How Food Affects Your Genes

Dr. Kristi Funk: Absolutely. Yes. What's more, what we've found out through a scientific study is that not only are all of these hormonal levels and oxidative stress levels altered by what we're consuming, but the core genetic mutations that occur within a cancer cell start to cross-talk with hundreds of other genes inside our bodies, turning them on or off to suit that cancer cell's survival instincts. But when you eat healthfully, literally, the cancer cross-talking chatter gets turned down.

In this one study by Dr. Dean Ornish, looking at prostate cancers in humans, in men, he found that simply through diet and some healthy lifestyle interventions such as stress reduction, that cross-talking chatter got turned down in over 450 bad genes and turned up in about 50 good ones.

So, food impacts the genetic circuitry inside your body. It's really quite phenomenal once you get into the science behind how nutrition affects cellular function.

The Truth About Soy

John Robbins: Well, I appreciate you mentioning Dean's work. Dean is a close friend of mine and also a speaker in this Summit along with you. And his work with prostate cancer is really powerful, as has been his work with heart disease and other conditions. And he's shown that people who — men, who consume soy foods actually have less prostate cancer than men who don't.

And there is a lot of controversy, though, surrounding soy foods, mostly due to the compounds in soy that combine to certain estrogen receptors. There are some people who are concerned that even moderate amounts of soy could increase the risk of breast cancer, or be harmful to women with breast cancer and especially so if their cancer is estrogen receptor positive.

Kristi, this is an important topic, and there is a lot of confusion around soy in the culture. Can you set the record straight about soy?

Dr. Kristi Funk: Oh, John, I'd love to. This is something that I'm very passionate to discuss — the consumption of soy. So, when we talk about soy, we want to think about whole food soy in the form of fermented soys, like tempeh, miso, soy — tamari sauce, natto, but also minimally processed soys in the form of whole beans soy milk, tofu, edamame. And these foods have been extensively studied in humans as they relate to breast cancer since 2009.

So, probably the majority of women out there, somewhere along the way in their lives, have been told that soy contains a high volume of plant-based estrogens, phytoestrogens, predominantly isoflavones in the form of genistein. And so we know 80% of all breast cancers are fed and fueled by estrogen. Who knows if your little estrogen receptor on a cancer cell is discriminating in taste and literally doesn't care about soy and only cares about your own ovary estrogen, right?

So, doctors' uniformly, just kind of knee-jerk response, "Spit that miso soup out of your mouth. There's no soy for you. It increases breast cancer." Or so we thought.

And I say "we" because I have to confess I went into the voluminous amount of nutritional literature specifically

to write the what to eat and what not to eat chapters in my *Breasts: The Owner's Manual* book, and I went in there to provide the scientific evidence to support my stance that you should spit the miso soup out of your mouth. Sorry about that ladies.

For 18 years, I was telling all of my breast cancer patients to avoid soy because we just didn't know what it did in your body. Oops. Embarrassingly wrong, I found out.

So, the reason why maybe this falsehood — this vilification of soy persisted for so long is that the studies were actually like nine out of 10 pro-soy, but every like one out of 10 you found — like a mouse study — where they were fed soy and grafted tumors would grow in the mouse or something. So, it created enough confusion that people didn't know what to think. But since 2009, there have been eight excellent human studies confirming that soy is not only safe to consume, it's beneficial.

So, on multiple fronts, if you consume soy even just one and a half times a week — but I advocate for two to three servings of soy daily — you will decrease the first time occurrence of breast cancer by about 60%. And if you yourself have a breast cancer, estrogen-driven or not, you will reduce that recurrence and breast-related death by about 32%.

These numbers, interestingly, are absolutely identical — 60% reduction in cancer and a 32% reduction in death — to the anti-estrogen drugs that we give cancer patients, namely, aromatase inhibitors and tamoxifen.

So, that begets the intriguing question, "Hmm, does soy then act on the receptor status inside the body just like these drugs do?" And the answer in all capital letters is "YES." It's phenomenal. And it's real.

So, the estrogen levels in your body go down when you consume soy. So, there's less cancer fuel.

John Robbins: Do you find the scientific evidence, such as you've just given us about soy, to be enough to reassure the women in your practice? And are there cases — are there women where it doesn't work? And what have you found to be helpful in terms of helping those women release the myths surrounding soy?

Dr. Kristi Funk: Well, I show them there are strong numbers in these studies. This isn't like a study of 12 women followed for three years. There was one study that looked at dietary intake of over 73,000 Chinese women and concluded that consuming soy during childhood and adolescence and adult life all protects against getting breast cancer. And then these cancer patient studies are really motivating to me to actually advocate actively for soy consumption, not just "It's okay, don't worry if you're, you know, eating out and have some edamame." No. Actually, order yourself a whole bowl of edamame. [LAUGHS]

So the LACE Study, which is Life After Cancer Epidemiologic Study, that looked at about 2,000 multi-ethnic survivors of estrogen-driven breast cancers who were taking tamoxifen, the anti-estrogen drug, they followed them over six years, and those who ate the most tofu and soy milk products had a 60% reduction in breast cancer recurrence, compared to women who didn't really eat much soy.

So, the interesting thing about that study is it even dramatically reduced estrogen-negative tumors — those that aren't fueled. So, it's not all about this genistein isoflavone connection in soy. The isoflavones aren't just anti-estrogen; they're anti-proliferation; they're antioxidants; they're anti-inflammatory. It's one of the most healthful foods to fight against breast cancer that I've come across. That and broccoli, I would say. [LAUGHS]

John Robbins: [LAUGHS]

Dr. Kristi Funk: [LAUGHS] We'll get to that I'm sure. I love broccoli.

Mushrooms and Breast Cancer

John Robbins: Yes. We will. We will. And I'd like to get to mushrooms. You were mentioning aromatase inhibitors.

Dr. Kristi Funk: Yes.

John Robbins: Mushrooms contain aromatase inhibitors and other estrogen-blocking compounds. And there are a lot of studies that indicate mushrooms to be potent, anticancer foods for both men and women, and in men, they keep testosterone and the other androgens from being converted into estrogens by aromatase, and thus, they improve testosterone levels in older men, which many older men would appreciate.

Dr. Kristi Funk: Right.

John Robbins: Kristi, if you were designing the ultimate anticancer diet, I know you'd include mushrooms. Would you include the common white button mushrooms or only the fancier and more expensive types, like portobello and chanterelle and oyster mushrooms?

Dr. Kristi Funk: What a great question. Because the answer is pretty shocking. It's actually that little old white button mushroom that has the highest estrogen blocking abilities of all the fancy mushrooms. So, that aromatase enzyme is most effectively inhibited by the button. And you know what? You're thinking, "Well, I don't really like mushrooms that much. How much do I have to eat?" It turns out that the equivalent of half of one button mushroom daily was enough to drop the breast cancer rates in Chinese women by 64% compared to age match no mushroom eaters. I mean, that's shocking. Just a half a button mushroom.

I will say, mushrooms and tomatoes are the two foods that I advocate eating cooked instead of raw. Most vegetables you get the most bang for your buck by eating them raw, and you get more of the phytonutrient awesomeness that way. Not so with mushrooms. They have a toxin, all mushrooms, fancy and not have agaritine in them, which is a toxin that is quickly evaporated by even just one minute of cooking, stir-frying, or otherwise heating. So, always... which is shocking, because the button mushroom is always sliced up on every salad bar in town as raw, but it should be cooked.

Breast Superfoods

John Robbins: It should be cooked. And now, let's talk about broccoli. [LAUGHS]

Dr. Kristi Funk: Yay.

John Robbins: Your list of the 10 breast superfoods starts with cruciferous vegetables and leafy greens. And those are, of course, the veggies in the cabbage family, which includes broccoli, and kale, and collards, and arugula, and mustard greens, and bok choy, and quite a few others. And one of the reasons that these particular veggies, the veggies in this particular family are so protective against cancer is the isothiocyanates that they contain. And the superstar of all the isothiocyanates is sulforaphane.

Kristi, what do people need to know about sulforaphane and about the anticancer power of vegetables in the cabbage family?

Dr. Kristi Funk: We need to know two things. One is how powerful they really are, and then number two, how

to maximize that power. So, how powerful are the sulforaphanes, which are the superstars, as you said, of the isothiocyanate chemical released inside the entire cruciferous vegetable family? But king and chief among them would be broccoli, and second to that... Actually, broccoli is chief, second to broccoli sprouts, which contain 100 times the amount of sulforaphane as broccoli.

But what do these things do in human beings, not just labs, and not just Petri dishes? It has been shown that sulforaphanes, literally, are able to seek out and destroy breast cancer cells. And they also contain these — the cruciferous vegetables contain Indole-3-Carbinols, which take excess estrogen and make you urinate it out of your body.

So much so that a study that looked at about 52,000 African-American women — followed them 12 years long, analyzing their food consumption — they found that cruciferous vegetables plummeted breast cancer rates by 41% among premenopausal women consuming about six servings a week. So, a serving is about a half a cup worth of leafy greens or broccoli. Not hard to consume six a week.

Maximizing the Power of Crucifers

The other — part two to this was how do you maximize this cancer-killing capacity [LAUGHS] of the broccoli floret? The answer is you have to eat it lightly steamed or raw and chew it thoroughly because you want to break down the cell wall. There is an enzyme that needs to be released — myrosinase — for the isothiocyanate — the ITC — to then get transformed after mixing with some molecules in your saliva into sulforaphane. So, if you cook your broccoli, you've destroyed the myrosinase enzyme, and you can't, then, convert the ITC to the big daddy, sulforaphane.

But here, by the way, is a trick. If you're like, "Ah, man because, you know, I love roasted broccoli [LAUGHS] more than anything. And now I have to eat it raw." Well, you just need some of the enzyme, right? So, what you could do is roast your broccoli, and then, on your plate, mix in a couple of raw florets. So, you're getting the enzyme that can break down the ITC that's in your roasted broccoli.

John Robbins: Could you also, as another alternative, if you don't [LAUGHS] like raw broccoli, mix in some raw arugula to the lightly steamed broccoli? Would that have the same effect?

Dr. Kristi Funk: Oh, I like that tip. Yes, it would have the same effect. So, all of the whole family, the broccoli, cauliflower, Brussels sprouts, and then the kale, arugula, collards, bok choy, that's all in our cruciferous family, and they all have the enzyme.

Anticancer Food: Berries

John Robbins: Another of the top selections in your 10 breast superfoods [LAUGHS] are berries.

Dr. Kristi Funk: [LAUGHS]

John Robbins: And [LAUGHS] Kristi, are there unique anticancer compounds in berries, such as wild blueberries and the common berries, blackberries, raspberries, and strawberries? And does it matter if they're fresh or frozen before they're eaten?

Dr. Kristi Funk: So, there are compounds like ellagic acid, anthocyanidins, and proanthocyanidins that are also actually found in the skin of apples, predominantly red apple skins, but these berries have these compounds that sound like a biochemistry textbook. And what they do, though, in plain English, is they mess with cancer cell

signals, that whole cross-talking thing. It quiets the bad ones; it amps up the good ones, and it actually kind of causes a cancer cell to kill itself. So, cancer cell suicide is called apoptosis, and the compounds found in berries make cancer cells explode.

They also do one more very important thing, and that is they inhibit angiogenesis. So, “angio,” — blood vessel, “genesis,” — birth. The birth of new blood vessels is a number one requirement for cancer cells to bring the nutrients they need to proliferate and form a true mass. And then, by doing this angiogenesis trick, they have literally created their exit strategy from wherever they are.

For us, we're talking breast cancer. So, in your breast, this tumor has created blood flow to it to feed it, and now, it has its direct route out into the body where it can land in lung, liver, bone, or brain — angiogenesis. Berries stop angiogenesis.

You asked about fresh or frozen. Berries are so fabulous. Please eat them however you want. However, do know that, whereas, you kind of feel like maybe you destroy some of the nutritional value of food when you freeze it. Not so with berries. Frozen berries more rapidly release the polyphenols, that we just named by name, into the bloodstream than fresh berries. So frozen is superior.

John Robbins: Frozen is superior. Well, it's also more convenient, and berries, of course, are very perishable when they're fresh. So, the fact that frozen — freezing them doesn't detract from their nutritional excellence and fortification of our cells is a wonderful thing to know. Thank you for that.

Coffee and Breast Cancer

I want to ask you about another controversy. I want to ask you about coffee and cancer. Now, it appears to me, from reading the literature, that drinking a number of cups of coffee a day can significantly reduce the risk of breast cancer, as well as other forms of cancer.

Dr. Kristi Funk: Right.

John Robbins: So, you've seen that too?

Dr. Kristi Funk: I've seen those studies, yes.

John Robbins: Can, can you help us unravel the confusion around the coffee/cancer connection?

Dr. Kristi Funk: Okay. Let's take the women who enjoy a protective effect against breast cancer when consuming a [LAUGHS] surprisingly high number of cups. We're talking five cups a day achieves about a 59% reduction in estrogen-negative cancers. And that's important to note because those are the most aggressive subtype of breast cancer that we have to treat, and we are the least successful with that one. So, a 59% reduction in estrogen-negative cancers, a 37% drop in all postmenopausal cancers. And part of that reason would be that we know coffee is very rich in anticancer, phenol compounds.

Interestingly, for my — our listeners who are BRCA mutation carriers, one study found a shocking 69% cancer reduction in BRCA carriers who drink six cups of coffee a day.

The Gene That Increases Breast Cancer Risk

John Robbins: You've mentioned several times the BRCA gene, the genetic situation that does increase risk for breast cancer, even though most of the cases of breast cancer have no obvious or apparent genetic component, but some do.

And, about six years ago, the actress, Angelina Jolie, focused public attention on breast cancer and on the genetic aspect of it when she wrote an op-ed in the New York Times telling the world that because she carries a rare cancer-causing mutation, she had chosen to have a preventive double mastectomy, which she said dropped her odds of developing breast cancer from 87% to 5% — an enormous drop. And, of course, you were her surgeon.

What I want to ask you, Kristi, first of all, is how rare is the mutation in BRCA1 that Angelina Jolie has? And secondly, how would a woman know whether she should undergo a genetic test to learn whether she carries a genetic mutation that substantially raises her risk?

Dr. Kristi Funk: Great question. So, BRCA is, across the board, found in one out of every 300 to 800, but on average, 500. So, one in every 500 people. That includes men. And that's a very important thing to mention because men are largely unaware that they have breasts and that they can and do get breast cancer, but they are more unaware that they can carry this breast cancer and ovarian cancer related genetic mutation and hand that down, then, to their daughters.

So, one in 500 people carry a BRCA mutation, however, in the Ashkenazi Jewish population, so those from eastern Europe, that jumps to one in 40 people.

And those listening should consider genetic testing in themselves not just for BRCA, but now for these whole genetic panels that we can test for up to 44 different genetic mutations, about 11 of which are directly associated with breast cancer. The rest of these mutations are other cancer-causing mutations.

However, it used to be very prohibitive. It literally was if you didn't meet strict insurance criteria, it cost \$4,500 to find out. The cash cost — so you could also do it anonymously if you have insurance concerns — is now down to \$199. Or you could have it covered by insurance if you meet criteria.

So, what are the main criteria that really elevate the risk that you very well might carry a gene mutation? You want to think about your first-, second-, and third-degree relatives on both mom and dad's side. So, that means that your dad's mom's brother, did he have pancreatic cancer? If so, take note. That matters. So, you want to think about all of these relatives, and then, listen to this list.

If two or more relatives have had breast cancer prior to age 50, or ovarian cancer at any age, you should test. If you are Ashkenazi Jewish, you only need one of those. So, one breast under 50, or one ovarian cancer, plus being Ashkenazi, you should test. I personally think all Ashkenazi Jews should get tested, irrespective of cancer in the family history.

If you yourself have had breast cancer prior to age 50, or breast cancer in both breasts at some point in your life, or a subtype that we've talked about — triple negative or estrogen-negative cancer prior to age 60 — you should test. If there are any known genetic mutations in the bloodline, for sure, you want to test. And finally, if there's just a whole lot of cancer going on, breast, ovarian, prostate, colorectal, pancreatic, stomach, melanoma. These

are all red flags that, potentially, you carry an inherited gene mutation.

John Robbins: Well, thank you for that. And I do want to also repeat something you said a moment ago, which is that, I think it was 87% of women who are diagnosed with breast cancer don't have a single first degree relative — that means, a mother or a sister, with breast cancer — who has had the disease.

Dr. Kristi Funk: Correct.

John Robbins: Even while we're talking about the genetic component, which does exist in some cases, and there's an intelligent way to deal with that, and I appreciate your help with that. We don't want to frighten people. And we want to remind them that what they eat really is important. And I say that because there is so much belief out there that it isn't when it comes to cancer. And we are constantly kind of fighting that myth.

Doctors and Nutrition Education

Dr. Kristi Funk: John, you know what I was truly blown away by when I wrote the book. Because, honestly, we physicians — we have a lot [LAUGHS] on our doctor plates, not to mention that we also might go home and be, you know, lovers, and parents, and children of aging parents. We've got a lot of hats we wear.

But so, it really does not set up well for your physician, once entrenched in his or her practice, to go home and open up nutrition journals. Which, by the way, we did not get one minute of in medical school, which, for me, was 25 years ago, and others even longer in practice. But even today, these students are not getting much, if any, true nutritional information.

What that does to us, without saying a word, is it just makes us think nutrition doesn't matter, just like the surveys that you mentioned at the top of this conversation. People don't think it matters. Their doctors don't think it matters. But what's going to make a doctor, then, who doesn't think nutrition matters because we weren't trained to think so, go home and instead of exercising, or being with loved ones, or doing one of a hundred things, is going to pore through nutrition journals looking for pearls of wisdom that we don't even think are there, so that we can then go back to work and impart those pearls probably for free because there's no real reimbursement on the preventative front there.

So, it's interesting to me that patients need to be their own advocates when it comes to understanding nutrition.

But when I dove into this because of my book, I wanted everything I wrote to be backed in rigorous scientific fact and not my opinion. And number two, I wanted the book to be bulletproof because I knew bullets might fly, and I wanted to have my facts referenced. There are 80 pages of over 1,500 studies cited. So, when I went into the deep science, as we've already talked about, not only was I blown away by how clearly important nutrition is when it comes to health, and illness, depending on what's in that nutrition, there's also a number of nutritional bullets that you can throw at these BRCA gene mutations.

Now, I'm not convinced of their total power, such that I would counsel a gene mutation carrier to like, "Hey, just eat more soy," like we've already talked about, or, "Hey, six cups of coffee a day." Right? We've already mentioned in passing a couple of things that, shockingly, reduce the breast cancer incidents in BRCA carriers. I wouldn't go 100% nutrition with a gene mutation carrier who is, say, 30 years old and has an up to 87% lifetime chance of getting breast cancer. I don't feel that confident yet that food can totally outdo a genetic mutation. But isn't that fascinating that, literally, foods can — in some circumstances — outwit where a cell is utterly

handicapped by a gene mutation? And food comes to the rescue and can repair it. Phenomenal.

John Robbins: It is phenomenal. And as you were speaking about how little, really none, legitimate nutritional education you received in medical training — and that's true for virtually all the physicians in the country — I was wondering, what originally led you to look at the role of diet and lifestyle in breast cancer risk?

Dr. Funk's Story

Dr. Kristi Funk: So, when I began my career in breast... I finished a breast cancer fellowship in 2002, and then I became the director of patient education at Cedar Sinai Medical Center and stayed there for eight years until I opened the Pink Lotus Breast Center with my husband. So, that was now 10 years ago.

And as director of patient education, I would go out into the community and give lectures to some physicians, but a lot of patients in the community at large. And after a couple of lectures where there were just a few old ladies, kind of half asleep in the background, there for the free pens, I decided to put a little — to step up my game [LAUGHS] a little bit.

And I found that the people weren't that interested in breast cancer, what is it, what are your different options for treating and curing it, lumpectomy versus mastectomy. While this is all incredibly important to a woman in the throes of decision-making because she was just diagnosed, someone who does not have breast cancer looming in the immediate presence doesn't really care to hear about it.

But what they do love to hear about is actionable items. Three cups of green tea a day drops breast cancer by 50%. Squeeze a little lemon in that, and you boost the antioxidant power by five times. Tips like that. I would have people sitting bolt upright in their seats taking notes and going straight from me to the supermarket, where they'd get cinnamon, and [LAUGHS] all these foods I'm talking about. So, I was starting to understand how powerful foods were because of that research.

Cancer and Animal Protein

But again, even when I went home, I wasn't diving into trying to figure out every last morsel I could help people with their daily choices until I wrote the book. And until I wrote the book, I have to tell you straight up, I was completely in a black box of ignorance when it came to how utterly detrimental and illness-promoting the consumption of all animal protein and all animal fat is on a cellular level.

And if I really thought about it, every single meal had some sprinkling of animal something. My healthy breakfast — non-fat Greek yogurt with some berries. My lunch — a big salad, but I dumped on a bunch of feta cheese and maybe a salmon filet. My dinner, which had whole grains and veggies, had a big chicken breast — boneless, skinless — on the plate. Like, every meal. Right?

I went into that literature and was so convinced by the rock solid evidence that the consumption of these animal products does everything to promote illness, and nothing to promote health, in terms of skyrocketing estrogen levels. And we've talked about it, right, the inflammation, the free radical formation, the oxidative stress, the big daddy battle that happens inside your body every single time you eat.

And about three weeks into it, I literally... I have triplet sons, and at the time, they were eight years old. I went downstairs, I opened the fridge, and I stared at all the food, and I said, "Boys, we're going vegan." And they were

like, "Yeah! What is that?" [LAUGHS]

And so [LAUGHS] —

John Robbins: "What is that?" [LAUGHS]

Dr. Kristi Funk: — and I said, "It's not eating any animals. We're going to eat tons and tons of plants." That was it. One day, one moment and my three sons, my husband, and I have never eaten an animal product since.

John Robbins: And how is the health in your family as a result? How's it working?

Dr. Kristi Funk: Fantastic. I have more ener... I was always high energy, and now I have more. My skin looks really smooth and pretty. We're all really healthy.

The kids are the last to fall in school when it comes to the common cold or the flu going around. And my husband who is an Ironman athlete — amateur Ironman, world-ranked — his athleticism has increased in terms of capacity and speed.

John Robbins: That's terrific. I'm glad that's working for you all. There's something about the modern meat industry that I want to mention here.

The industry uses hundreds of animal feed additives, and these include antibiotics and tranquilizers and pesticides and various animal drugs and even artificial flavors and industrial wastes and, particularly, growth-promoting hormones.

And they add these substances to the feed the animals eat. And they do that really with no concern about the carcinogenic or other toxic effects. And one of the feed additives that really concerns me when it comes to cancer risk is zeranol. This is a synthetic estrogen. And it's so frequently given to both U.S. and Canadian beef cattle, to accelerate their growth, that it's found in all conventional red meat that's eaten in the United States and Canada now.

So, Kristi, zeranol can help a baby calf grow a lot. It can — It'll gain three-quarters of a ton in 18 months. Do we know what effect zeranol has on breast cancer risk and on other health concerns in humans?

Dr. Kristi Funk: We have strong evidence to suggest that it's nothing good [LAUGHS]. So zeranol, as you said, is a potent estrogen mimicker. It is actually the most potent growth hormone found in human food and has 100,000 times the estrogen influence of BPA from plastics. So, I always like to point that out to people who are like anti-water bottles with BPA in them — which is good a thing to be, don't get me wrong — but if they are walking around with their canteen of water or their glass water bottle and then eating a beef hamburger for lunch, they just don't know their facts.

So let's talk about some of these facts. Zeranol, in the lab — if you drip zeranol onto benign human breast cells in a Petri dish, they will turn into breast cancer cells in 21 days. And then you say, "Well, who cares?" Right? Who's dripping zeranol on Petri dishes in that — and does that impact anything? You bet it does. So this is what we know. It does get into our bodies.

There was a study of a... Not a big — it was 163 New Jersey girls, nine- and 10-year-old girls, and they tested their urine for zeranol. Seventy-eight and a half percent of those girls had zeranol in their urine. One hundred

percent of them had eaten meat the night before. The ones without zeranol had not.

This is already known, though, by Europe. What we're... We tend to be in front of Europe in some things and way behind when it comes to toxicities in everything from food to cosmetics and household products.

So, let me tell you a quick story bringing us back to Italy. A little town in Italy in 1981 found that these boys and girls ages three to ten suddenly just started sprouting breasts. And when they tried to figure out why, all of the signs pointed back to the zeranol used in beef.

And you mentioned that the zeranol is ubiquitous in all conventionally grown cattle. Is that significant? Ninety-four percent of the beef we consume in America is conventional, so you bet. Only 6% is going to be organic and grass-fed. And you can also put zeranol in grass-fed, by the way. The only sure bet to avoid zeranol is organic, but I would suggest don't bother with the beef at all.

Back to 1981. Back to Italy, and these boys and girls with breasts — because they tracked it to zeranol, the now-European Union — back then the EEC — banned zeranol and all other growth promoters, okay? Because it's the U.S.'s trick to ban one thing and then just find a substitute and use that instead. They banned it from all of Europe, and then they cited the potential that the zeranol causes cancer in human beings.

So, in 1989, the EEC, now EU, prohibited the import of all beef products from the United States and Canada. And that ban exists to this day because we refuse to give up zeranol after it was shown in European studies to be a cancer promoter.

There was one pretty telling study. The Nurses Health Study, too. They followed over 39,000 premenopausal women for seven years and found that there was a 34% bump in estrogen-positive premenopausal breast cancer for those who ate the most red meat during their high school years. So, moms out there, I would keep conventional beef far away from your teenagers and your adolescents.

Alcohol and Breast Cancer

John Robbins: Yeah, for good reasons — very good reasons.

There's another food that maybe we shouldn't be consuming as much of as we do, and that's alcohol. It is... Is it a food? It's a source of calories, so in that sense it is. And you've written that of all the controllable risk factors for breast cancer, none is more prevalent across diverse populations and cultures than alcohol. Kristi, what is the role of alcohol in breast cancer risk?

Dr. Kristi Funk: If you have a drink a day, you increase breast cancer by 10%, two drinks a day 30%, three drinks a day 40%, and you can add 10% per drink thereafter. So, what is it about alcohol that's so carcinogenic when it comes to the breast cell?

Well, first of all, it increases estrogen levels. And we can... By now we know that's just breast cancer fuel for 80% of all cancers. So it increases estrogen levels, it also impairs immune function. It creates toxic metabolites that are just directly toxic to the cells called acetaldehyde. Which, I hate to break it to you, even if you used alcohol as mouthwash, like spit it right out, you have already formed the acetaldehyde which you are going to swallow down into your system. That's how quickly alcohol metabolizes into cancer-causing compounds.

And perhaps one of the biggest reasons when it comes to the breast specifically as evidenced in studies is that alcohol inactivates this enzyme that converts folic acid into its most helpful form — methylfolate. So the safest

amount of alcohol to consume if you are truly concerned about breast health is zero.

John Robbins: There's another topic I want to ask you about briefly. I've heard the claims — and initially, they seemed plausible enough that I thought they might be true — that tight bras compress the lymphatic system of a woman's breast, which leads to toxins building up within the breast tissue, which damages the cells and increases breast cancer risk.

Now, Kristi, you're a breast surgeon with great expertise in the physiology and in the pathologies of the human breast. Do these claims that tight bras increase cancer risk have any grounding at all in breast anatomy or in breast physiology?

Dr. Kristi Funk: They absolutely do not. So they are smart-sounding hypotheses in terms of blocking lymphatic fluids. And we know lymph fluid carries away toxins, so if they get blocked and they pool in the breast tissue, maybe they have a direct toxic effect, but it just doesn't happen. It doesn't happen.

And it doesn't matter if you wear an underwire, either. There were theories that maybe that conducts electromagnetic fields that then alter the breast cell environment, but there's no grounding in anatomy or physiology to support any claims. So, I always tell women, whatever you want to do in terms of support [LAUGHS], you have my support.

The Pink Lotus Foundation

John Robbins: That's sweet. You know, you run the Pink Lotus Foundation, which is the foundation associated with your practice, which is called the Pink Lotus Breast Center. And the Pink Lotus Foundation provides 100% free breast cancer screenings and diagnoses and treatment and support to low-income and uninsured or underinsured women to those who otherwise might not be able to receive any care at all.

Dr. Kristi Funk: Right.

John Robbins: I — Kristi, I don't actually have a question about this so much —

Dr. Kristi Funk: [LAUGHS].

John Robbins: — as a desire to acknowledge you for doing this.

Dr. Kristi Funk: Well, thank you. Yes, it's really tragic that a woman who's down on her luck and doesn't make much money but makes enough money, by the way, that she can't afford emergency insurance coverage through Medicaid, right? You have to be below the poverty line. So, if you're someone who makes \$60,000 a year and you find yourself with a new breast cancer diagnosis and no health insurance, you make too much money to get the emergency Medicaid, and if there's not open enrollment happening at the time, you are stuck. Doing what? Selling your car, your house? Taking out crazy loans? I mean, it's just madness. So the foundation supports women like that.

And then, we have a number of women who actually do meet the poverty line and don't have insurance, but they have a — maybe a free mammogram because those mobile mammographies abound, especially in October. So you can get one free mammogram, and guess what happens? If you have something seen on your mammo, it's read, and they'll say, "Um, there's something on your mammogram that you need to get checked

out." Good luck with that. And that's the end of it.

So now, this woman has to figure out — well, it's going to cost about \$2,000 to get more imaging, a biopsy, and then to find out if they have cancer. Then, they can take that pathology report to the emergency insurance services, you know, Medicaid, and get emergency insurance.

But what does it cost to get that path report in hand? About \$2,000. And this is the same woman who needed a free mammogram. She has to decide between groceries and gas or working up this lump that nine times out of 10, by the way, is nothing. Not a lump, but an abnormal mammogram.

So, the foundation is here to stop all of that madness and really just inhumane treatment of women in a time of need. And I'm really proud of my husband who founded it.

John Robbins: Well, we appreciate the compassion, the caring, and the wisdom of what you're doing there very, very, very much. I know all of our listeners join me in thanking you for that.

Dr. Kristi Funk: Thank you.

John Robbins: An Kristi, you're probably best known as a surgeon. And I'm sure that being the surgeon for celebrities, like Sheryl Crow and Angelina Jolie, is partly [LAUGHS] responsible for that notoriety. But after reading your book and after speaking with you today, I have the impression that your ultimate mission as a physician really is to do everything you can to teach women about breast health and to help them take charge of their health and understand what they can do to reduce their cancer risk. Is that accurate?

Dr. Kristi Funk: That is absolutely an accurate description of my passion. And in writing this book, *Breasts: The Owner's Manual*, I came to truly feel that writing this book and putting my passion into words, my mission of education into words, and perfecting it... I'm sure I can even hone more pearls as decades go by, but right now, I had a false message until I wrote the book, as we've talked about, and dove into the real truth behind nutrition and its importance.

Now, I feel that writing this book was the reason I was born. I have an assignment in life. It is to preach this message that is found throughout the book about diet and lifestyle changes and how they impact all of health and, specifically, breast health because that's my expertise. And I will not stop until this mission is complete. So, the sooner every woman on earth would just read my book and do everything I write, [LAUGHING] then I can get a new assignment.

John Robbins: [LAUGHS] Not a lot of people know this, but the word doctor derives from a Latin word which means "to teach." And you are, as well as a supremely accomplished surgeon, a true teacher.

It's been a pleasure for me to speak with you today, Kristi. And on behalf of Ocean and myself and everyone involved in the food revolution and everyone who eats, everyone who has breasts, everyone who lives on this earth today, I thank you for your outstanding work, your deep caring, and for being with us today.

Dr. Kristi Funk: Thank you, John. Thank you, Ocean.

Ocean Robbins: We've been talking with Dr. Kristi Funk, co-founder of the Pink Lotus Breast Center and author of the bestseller, *Breasts: The Owner's Manual*.

Kristi, you are one of the most accomplished breast surgeons in the world, and here you are telling us how we

can put a whole lot of surgeons out of business.

Dr. Kristi Funk: [LAUGHS]

Ocean Robbins: And we want to thank you so much for your brilliant insights, your wise guidance, your eloquent passion, and your partnership in the food revolution.

Dr. Kristi Funk: It's my privilege to be a partner with you both.