

Program Title: Nutrition for Breast and Ovarian Cancer
Presented by: Support Connection, Inc.
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Guest Speaker: Mary Beth Augustine, RDN, CDN, FAND:

Mary Beth Augustine is the Integrative Dietitian Nutritionist at the [Graf Center for Integrative Medicine at Englewood Hospital and Medical Center](#), and Founder and Director of Nutritional Healthcare offering medical nutrition therapy services and wellness services for adults and children.

Mary Beth's past work experience includes: Senior Integrative Nutritionist and Director of the Integrative Nutrition Internship at the Mount Sinai Beth Israel Center for Health & Healing; Director of the Master's Degree Program in Integrative and Functional Nutrition at Saybrook University; Clinical Dietitian and Integrative Medicine Nutritionist at Memorial Sloan Kettering Cancer Center; Cardiovascular risk reduction research at the American Health Foundation.

Mary Beth has spoken at numerous conferences and venues, including: the United Nations Committee on Aging; American Institute for Cancer Research Cancer Survivor Conference; Integrative Healthcare Symposium, Food & Nutrition Conference & Expo; the New York, Hawaii, New Hampshire, Massachusetts, Nebraska, and Wisconsin Academy of Nutrition and Dietetics meetings. Mary Beth has been featured on CBS, ABC, NBC, and Fox 5 News, Today in New York, CNN Market Watch, Discovery Health TV, and National Public Radio.

A twenty-plus year survivor of cancer, Mary Beth is dedicated to sharing her personal and professional passion to educate people about the interconnected health of people, food and land.

Description of Program:

Studies show that diet plays a role in cancer initiation, promotion, progression, recurrence, and survival. This national webinar/teleconference focuses on the benefits of Japanese, Mediterranean, Vegetarian and Hunter-Gatherer Diets.

Topics include:

- How dietary variety, eating seasonally, eating more like our hunter-gatherer ancestors, and calorie restriction and intermittent fasting may help in the fight against cancer.
- How nutrients in food play a role in cancer cell multiplication, tumor growth, hormone levels, and cancer cell death.
- The relationship between cancer and the human 'microbiome' - the 100 trillion bacteria, viruses, fungi, and other tiny microbes that live in our bodies.

Moderator: Marlene Stager, Support Connection Peer Counselor

Marlene Stager:

It is now my pleasure to welcome Mary Beth Augustine. She is an integrative digestion nutritionist at the Graf Center for Integrative Medicine at Englewood Hospital and Medical Center and founder and director of Nutritional Healthcare offering medical nutrition therapy sessions and wellness services for adults and children. Mary Beth has spoken at many conferences and venues across the country and has been a guest on numerous local and national TV and radio programs. As a 20+ year cancer survivor, Mary Beth is dedicated to sharing her personal and professional passion about the interconnected health of people, food, and land.

And, Mary Beth, I will now turn the presentation over to you.

Mary Beth Augustine: Thank you, Marlene, for that warm welcome, and thank you for including that I am a cancer survivor. I always like to explain that this is a topic that is both very personally as well as professionally near and dear to my heart as well as my cells and my whole body.

So without further ado, why don't we get started?

So since my cancer diagnosis 27 years ago, we've had a lot of advances in the science about diet and nutrition and cancer. And now there's high scientific agreement that diet plays a role in every stage of the cancer process, and that includes the initiation of cancer, where one normal cell is turned into a pre-cancerous cell or the promotion of cancer where that cancer cell has turned into a population of cancer cells, or a tumor, or a lymphatic or hematological blood-borne cancer as well. The progression of cancer where the cancer metastasizes or moves to distance parts of the body, the recurrence of cancer, and the mortality or survival from cancer.

So, really, experts are now in agreement -- and I say "now" because the science has been accumulating for the past 25 to 30 years in this area, that diet impacts every stage of the cancer process. Likewise, with regards to another well-known controllable and modifiable risk factor for cancer, obesity and overweight actually also impact cancer survivorship and, essentially, every stage of the cancer process as well. It affects the quality of life for individuals living with cancer, obesity and cancer affect cancer progression, cancer recurrence, cancer prognosis and survival.

There is a wonderful resource that you're welcome to look online for more information on. It comes from the American Institute for Cancer Research and the World Research Cancer Foundation, and those two associations or organizations have partnered together to collect data on what is called the CUP or the Continuous Update Project. And this project is really a worldwide research tracking, if you will, on diet, weight, and physical activity as it relates to cancer risk, cancer incidence, and cancer survival.

Tonight we are focused more specifically on breast and ovarian cancer, so I've included more references to these cancers here. But the CUP project tracks all cancers worldwide, and, again, these kind of modifiable risk factors for the cancer incidence or the cancer survival. So really looking at things like diet, weight, physical activity, alcohol and as it relates specifically to incidence and survival of cancer.

And with breast cancer they've studied over 85 studies where they've explored the data from these studies, and they've analyzed over 164,000 women and really they've come to some conclusions on what factors indicate longer survival. And, happily, there are now 3.1 million US breast cancer survivors, and some of the things that they've discovered through the CUP project of these factors that influence survival are, most notably, being a healthy weight; being physically active; eating foods containing fiber; eating soy foods, which I'm sure people will have questions on, and if they could hold them until the end, that would be great; and eating diets low in saturated fat. And so these are their guidelines for women with breast cancer on breast cancer survival.

With regards to ovarian cancer, the strongest relationship between diet and nutrition, physical activity and lifestyle really is with regards to body weight and body mass index and body composition. So 5% of ovarian cancers can be prevented by being a healthy weight. That's really critical in the United States where a base of overweight and obesity are skyrocketing in the past two to three decades, 20 to 30 years.

And so the guidelines now are to achieve and maintain a normal body mass index, what they also call BMI, and that's something also a Google search online can tell you. If you just put in "BMI calculator," you could easily put in your height and your weight and calculate your body mass index. It's also recommended to achieve and maintain a healthy waist circumference and, again, one of the great advantages of search engines like Google now is you can become an expert in almost anything, and you can get information anywhere. And so waist circumference, it's not something that needs a lot of interpretation. It's a very easy way to measure it with a measuring tape, so that can be done and interpreted to find out if you have a healthy waist circumference.

And, likewise, the waist-to-hip ratio, and that's simply a matter, again, of having a simple measuring tape and measuring your waist and measuring your hip and, again, a quick Google search would find information on what is a healthy waist-to-hip ratio. So some very strong indicators for maintaining a healthy weight and a healthy body composition in addition to, of course, eating smart, all the guidelines for an anti-cancer diet, which I will be getting into shortly.

So there you will find a lot of information including some conflicting information on the diet and cancer relationship. So you always want to ask who is your resource, who is giving you the information, what is their education, their training, their credentials. And so as a Registered Dietitian Nutritionist, which I am, and a Certified Dietitian Nutritionist and a fellow of the Academy of Nutrition and Dietetics, who I've been practicing for 22 years. And over those years, I've worked in cancer centers. I think I've spent, oh, about 18 years now working in three teaching hospitals in the New York/New Jersey area. And so tonight I'm really presenting a very -- an overview, really, of what the science is with regards and what the research is with regards to the diet and cancer relationship.

And some of the best science and the best research that we have really points to the Japanese, Mediterranean and vegetarian diets both from a decreasing cancer incident but also influencing cancer substantial perspective. So many people think that these diets are very dissimilar, or different, if you will. However, there are many, many more similarities than differences. There are some differences, which I will share with you, but I'd like to focus more on the similarities at this time because, really, there are many similarities.

So when you study the effect of diet on cancer, you could imagine, if you were a scientific researcher that you would have to follow a person and what they eat for a long time, right? If you want to look at did they develop cancer or did they survive cancer? It can't be a short-term study. It can't be a month, it can't be three months, it can't be six months, it can't be a year. Really, when you're looking at the relationship between diet and cancer risk or incidence who gets cancer or the relationship between diet and cancer survival, you really need to follow people for years. And if you've ever participated in a scientific study, you would know that it's kind of hard to follow dietary guidelines for years, right?

We see this all the time, even with people who have to follow a diet for their blood pressure, a low-sodium diet. Or they have to follow a low carbohydrate diet for their diabetes. Or they have to follow a low cholesterol or low saturated fat or high fiber diet for their heart health. It is hard to follow a restricted diet, to do it successfully, to adhere to it long term.

So the types of studies that we gather a lot of scientific information and a lot of research from, really, is of what they call "free-living populations." So populations of people who eat a certain way, and that's why the Japanese diet, the Mediterranean diet, and the vegetarian diet have

been so well studied, because you're studying cultures and populations of people living in a certain area. In Japan or in the Mediterranean and Greece and Spain and Italy, or as is the case with vegetarian diet, it's easy to track people who have been vegetarian for many decades, many years, or a lifetime because there are some religions that do adhere to a vegetarian diet for religious principles. So the Japanese diet, Mediterranean diet, and the vegetarian diet, you can you really track their diets as well as the incidence of cancer and the recurrence and survival of cancer.

So -- what do the Japanese, Mediterranean and vegetarian diet have in common? And if you notice, on your screen, you'll see what's called the Lacto-Ovo Vegetarian Diet. Lacto, like lactose from milk; Ovo for egg. So the Lacto-Ovo Vegetarian Diet really is a vegetarian diet that includes milk and egg products, which is different than a vegan diet, which is only consuming plant-based foods, eating no animal foods, which would exclude milk and eggs. There have not been long-term studies of a vegan diet 20 and 30 years like you do have, again, of populations living on a Lacto-Ovo Vegetarian Diet for religious purposes as is the case with Seventh Day Adventists and some parts of India.

So if you have questions about a vegan diet, you're welcome to ask them during the question-and-answer period, but I did want to point out right now, the vegetarian diet here is really referring to the milk and egg consuming, or what I like to call the "LOV" diet, or the LOV Diet.

So the similarities between these three diets, if you look at, kind of, the little section where they overlap, really, where they're similar are they -- all three of these diets are high in plant foods. And a plant food is very simply either a vegetable or fruit, a grain, a bean, a lentil, a nut, a seed, an herb, a spice, a tea. Really it grows in the ground or on a tree or on a plant. It doesn't swim or moo or squawk or run, so it's a plant, essentially.

So these three diets are high in plant foods and low in animal foods. They're all high in vegetables, high in fruit, although differing amounts of fruit intake in the Mediterranean and Japanese, and I'll get into that more in a moment. They're high in beans and lentils, high in nuts and seeds, high in whole grains as opposed refined grain, high in herbs and spices, and, interestingly, something that's gaining a lot more scientific attention and scientific research and scientific study is what's known as dietary diversity, which really refers to variety. What we used to call it in the old days, like dietary variety -- do you have a varied diet? And I will definitely elaborate on that more.

But also now they're looking at, even with regards to the Mediterranean diet, the quality of the diet, which can extend to how foods are prepared, how they're stored, how they're preserved. All sorts of factors that will distinguish the quality of the diet.

Now, I will say there are some differences of the Japanese, Mediterranean and vegetarian diets. The Mediterranean and Japanese diet have more fish than the LOV diet, the vegetarian diet. They don't eat fish. The Mediterranean and the Japanese diet have more meat than the vegetarian diet. Again, vegetarians don't eat meat. The Mediterranean and the vegetarian diet have more dairy, though, than the Japanese diet. The Japanese diet is very low in dairy. And the Mediterranean and the Japanese and vegetarian diets all have different, what we would call, staple plant foods, meaning that, for example, in the Mediterranean you may be more likely to have pignoli nuts, or pine nuts, or walnuts. And in the Japanese diet, you may be more likely to have a Gingko Nut. Or in the Japanese diet, the staple grain may be rice, whereas, in the Mediterranean diet the staple grain may be wheat.

So all of the diets really have different emphasis -- different inclusion of what we consider their staple plant foods. And sometimes that just simply is basically driven by the geographic region of the world, their climate, their soil, their temperature, kind of, what grows there more so than a consumer taste or preference. It's just what grows in their climate and their temperature agriculturally.

So how does the American diet compare to the Japanese, Mediterranean and vegetarian diet? Well, not very favorably, honestly. The American diet is higher in animal foods, it's higher in meat, total meat, and higher in processed meat. The American diet is higher in highly processed grains as opposed to whole grains. In fact, Americans are consuming, on average, 525 calories a day from highly processed grains. And I want to emphasize that, because when we get down to vegetables and fruits and sugars, there's quite a different comparison.

The American diet is higher in processed, and now they've created a whole new category called ultra-processed foods. So you can have minimally processed foods and ultra-processed foods. So higher in minimally processed and ultra-processed foods and lower in whole foods than the Japanese, Mediterranean and vegetarian diets that have been studied.

The American diet is higher in saturated fat, total added fat, added to packaging and processing and preparation all along the supply chain. And higher in highly refined oils. The American diet is also higher in added sugars and sweeteners more so than Japanese, Mediterranean or vegetarian diets. In fact, Americans are consuming, on average, 336 calories a day from sugars and sweeteners, which equals about 23 teaspoons a day. You may be thinking, "I'm not taking out a spoon and having 23 teaspoons a day," but it's hidden. It's added to almost everything, even in small amounts and some in higher amounts. So it's in your condiments, it's in packaged and processed foods, it's in things that you would never have suspected.

And Americans are eating, on average, 129 pounds a year of these added sugars and sweeteners. I mean, that's the size of a person, 129 pounds. Americans, however, are eating less vegetables. We're eating about 126 calories a day from vegetables. Now, again, compare that to 336 calories from sugar and sweeteners and 525 calories from grains. We're eating not - - although I will say that vegetables are lower calorie, you know, we're still eating far too few vegetables and far too few fruits.

The average serving of starch vegetables is 90 calories and a serving of non-starchy vegetables is 25 calories. You add those two together, that's pretty much the equivalent of what people are getting a day -- a potato and a tomato, you know, 125 calories.

Fruit -- Americans are consuming about 85 calories a day. That's the equivalent of not even one-and-a-half servings a day. And I see this every day in practice with my clients and patients. As much as they may love vegetables and fruits, very often it's either haven't shopped for them, haven't prepared them, haven't brought it to work, you know, running late, didn't have time, you know, it rotted in my crisper, it was too bruised by the time I got to it, overripe, so there are many barriers to vegetable and fruit consumption, but they need to be overcome.

Americans are eating less beans and lentils, seven pounds on average per year compared to 129 pounds of sweeteners per year. Less nuts and seeds than the Japanese, Mediterranean, and vegetarian diets -- four pounds only a year compared to 129 pounds a year of sugar and less spices and herbs compared to Mediterranean and Japanese diets where you have coriander and turmeric and cumin and dill and thyme and oregano. American diets are much higher in things

like salt and pepper and much lower in the very flavorful and aromatic or high aroma herbs and spices.

A word about dietary diversity. So dietary diversity, again, it's like variety. There was a really interesting study where they compared women who ate 8 to 10 servings of vegetables and fruits a day. They divided them into two groups, and they followed them for three months, but they told one group to choose their vegetables and fruits from five different what we call "plant families." Think about like you have a citrus family, you have a melon family, you have cruciferous vegetable families. Fruits and vegetables are grouped into little families depending upon their composition.

So the other group they told them to choose their vegetables and fruits from 18 different plant families. Really, what they were studying was not the total quantity, how much vegetables and fruits they were eating, both groups were eating the same. They were really studying the quality and the variety of -- or diversity of these fruits and vegetables.

Interestingly, at the end of the three months, and they took blood in the beginning of the study and midway through the study and at the end of the study, and they were looking for DNA oxidation. Now, DNA is the genetic materials in your cells, and that's where cancer, a normal cell starts to turn into a cancer cell. So DNA and also other chronic diseases DNA oxidation is linked to -- so it's linked to cancer as well as chronic diseases.

What was interesting was they found only the high diversity, meaning only the high variety fruit and vegetable group had decreased DNA oxidation. The low variety group didn't. So the authors concluded that more amounts of many, what they call, cytochemicals, plant chemicals, are better than larger amounts of the same cytochemical. Now, I want to elaborate on that a little bit because we live in a society where we keep getting a lot of information in the media that says, "Oh, the top 10 foods to fight cancer," "the top 10 foods to fight heart disease," "the top 10 foods for brain health." And, you know, wonderfully intentioned people come to see me all the time eating the same foods again and again and again. Sometimes it's what they prefer, but sometimes it's just because they have been told that these are, kind of, the super foods for cancer or the super foods for diabetes, or the super foods for bone density, or the super foods for cognition and memory.

And, really, at no time in the history or evolution of man over the hundreds and hundreds of years that we've existed or thousands and thousands and thousands of years that we've existed have we really been able to eat the same foods day in, day out, until the past number of decades where we had shipping, transportation, refrigeration, and a global food economy. So now we can eat melons and berries in winter in three feet of snow outside.

So I want to emphasize that you should not be consuming a super foods diet. That doesn't mean you shouldn't be consuming super foods, it means you shouldn't be consuming the same super foods again and again and again and again. So I'll elaborate a little more on that.

So what, in general, do I eat to fight cancer, before we move on to the hunter-gatherer diet? Well, a lot of information you've heard, the things is, many of the people I meet with have heard this information, but maybe it doesn't sound convincing or compelling enough. So many times people come in, and I say, "I am going to talk to you about vegetables and fruits, and they think, "But what else, but what else?"

I have read personally -- in 22 years, I've probably read 30,000 different studies on vegetables and fruits, and their specific disease-fighting abilities. What I cannot emphasize enough is rarely, rarely, rarely do I meet with people who are getting the quantity and diversity of what they need, which is eating a diet of whole minimally processed foods, having six to seven servings of vegetables daily.

And when you're done with tonight's webinar, write down what did you have today and see if you met these guidelines -- two to three servings of fruits daily, and you'll see I'm emphasizing "vary" the variety of these. You should be having a green every day; a yellow-orange colored vegetable or fruit every day; a red-colored vegetable or fruit every day; a purple blue-colored vegetable or fruit every day. And then the white, tan and brown family -- so things like mushrooms or garlic or bananas, which are not yellow. I know it's the first inclination, we always think yellow, but they're white, tan and brown. Cauliflower is in the white, tan and brown colored.

So when you're doing this eat a rainbow every day, not only do you have to choose these colors every day, but the next time you go shopping, you must vary them. So when you go shopping you think, "Oh, what did I get last time that was green? Oh, I had asparagus. This time I'll get tomatillos." Or I'll get bok choy. So you always want to -- "Oh, I had yellow-orange last time. I had apricots or mangos. This time I'll get persimmons." You know, red -- "I had raspberries or strawberries. This time I'll get" -- I just blanked out on my red for a minute. "I'll get something else red, I'll get beets." So really varying them.

Cruciferous vegetables often -- most people think of broccoli and cauliflower, but there's probably about 20 different cruciferous vegetables, including watercress and horseradish are things that people don't generally think of. And alliums, which are the onions, leeks, shallots, chive and scallions family.

You should be consuming three cups of beans or lentils weekly, which is so little. It's a half a cup most days of the week. That would add up to three-and-a-half cups in a week if you had a half a cup every day. So we're really talking small amounts compared to the tremendous amount of added sugars or added fats or refined grains we're consuming.

Five to six ounces of nuts or seeds weekly. Again, this is roughly eight-tenths of an ounce to an ounce a day. What they used to give you on a plane before they downgraded to three quarters of an ounce and then a half of an ounce. So very small. Just a little circle in the palm of your hand is an ounce of nuts or seeds, and this extends to nut butters or seed butters. It could be a sunflower seed butter or a cashew butter, a macadamia. And I'm emphasizing vary. When you shop, you get a jar of almond butter. Then the next time you get a jar of all-natural peanut butter, then you get a jar of cashew butter and the next time you get a jar of sunflower seed butter. You keep varying it.

Three to seven servings of whole grains daily. There seems to be a window for how much grain we should be having. Approximately three to seven servings, not less and not more. The inclusion of Mediterranean, Asian, and Indian spices and herbs. Each week you should be thinking, "What spices can I use this time?" You know, try -- go out and pick a spice you've never used. Get a spice cookbook. Go online and put in cumin or tarragon if you've never used tarragon and see what type of recipes come up for tarragon recipes.

We should be eating cultured and fermented foods like pickled and cultured vegetables and kaffir and yogurt and cultured cheeses, if you choose to eat dairy. Plant food should make up

two-thirds to three-quarters of your plate, and animal food should make up a quarter to a third of the plate. There are all different ways to measure this. Sometimes people say, "Oh, I'll have one meal a day with animal foods and two meals a day without animal foods." We're really talking about ratios of plants to animals.

You should be having 8 ounces of low-mercury fish per week. There's a wonderful resource, the Monterey Bay Aquarium Seafood Watch, which gives information on mercury content of fish and farm fish and wild fish and environmental contaminants. So it's a great resource. You could just go on Google and find it.

Limiting red meat per week to 18 ounces or less, and that includes beef, lamb, or pork. I know you may be hearing that pork is the new white meat, but the American Institute for Cancer Research still -- and many of the leading dietary and nutrition guidelines and resources still consider it a red meat not a white meat. And you should be eating added fat sparingly but allowing the fats that occur naturally in foods, in nuts and seeds and avocado and fatty fish, et cetera, olive; using added sweetener sparingly and alcohol sparingly.

I want to talk a little bit about the hunter-gatherer diet, or what is known as the indigenous diet also. Indigenous means, really, tribes of people that are still living in just that, in, kind of, tribal settings and very rural settings and very, kind of, forest-like settings. But they're living in their own kind of tribe, if you will. So this hunter-gatherer diet, I do want to distinguish. It's not a paleo diet. I think there's been about 50 studies, at least, of different -- 50 to 80 studies of different indigenous peoples' food systems where they've looked at their culture, their diversity, where they get their foods from in their environment, what type of foods they eat, how do they gather them.

But this is not what you're hearing about, like, a paleo diet, although if you have questions, you're welcome to ask them during the Q&A period. What we've learned from hunter-gatherer and indigenous diets is that they gather their food from farming and wild harvesting. So they're not domesticating -- they're not planting the same species of, you know, wheat all the time, or the same species of corn. They're actually wild harvesting, selecting -- harvesting and picking what's growing wild.

They may be farming, but they're not farming just one species of a plant. They're using multiple different types of seeds. In fact, when they look at the different food varieties and species in the indigenous food system, they looked at from the lowest 35 food species that were regularly consumed among these indigenous peoples to as much as 381 varieties of food.

Now, the American diet, it's been estimated that we consume about 15 different food species on a regular basis, and if you were to record everything you ate for a week, I think you would see that a lot of it is wheat and dairy and soy with about three to five varieties of fruit, about three to five varieties of vegetables, about three to five varieties of nuts and seeds, and about three to five varieties or less of beans. People eat even less varieties of beans. So, unfortunately, America has one of the very lowest dietary diversities, the lowest variety of foods.

These indigenous people, they are using traditional preservation and processing methods that they've done for centuries. They consume few foods from the marketplace. They do sometimes trade foods with other people, and different types of species have been introduced, different plants have been introduced from, kind of, migration of people that may have been introduced

to the environment. But they're really not going to a market and consuming something that's in a box or a bag or a jar with a little scanning code on it.

We've also learned from these hunter-gatherer and indigenous diets that the people have a connection to land and to conserving the ecology of the land and the balance of the ecosystem so that everything is kind of at a healthy balance in nature. And that they also have strong relationships between culture, nature, and health, and that they use food and plants as medicine.

So this study of, kind of, the increasing study of the hunter-gatherer diet and indigenous diets has really caused researchers to look at the natural environment versus the urban environments. And, in fact, researchers are now speculating about things that they call is there a modern paleo deficit disorder? Meaning paleo like Paleolithic, like cavemen. This is not a Paleolithic diet where people are eating bacon cheeseburgers all day and steak and sausage.

But when we talk about Paleolithic times, we're thinking of people who lived outdoors. They hunted, they fished, they gathered, they built their shelter, they were outdoors in the natural daylight in the fresh air. Now, granted, they also had diseases. That didn't mean they lived forever. They had more infectious diseases, you know, they died from harsh conditions in the climate, et cetera. But have we swung too much in the opposite way in our urban environment and now are we not actually getting enough exposure to our natural environment. And this is now a new area of study, really, called environmental nutrition, where there is more examination of the interrelationship between our food choices, our environment, and our health.

So when we look at these paleo, ancestral, indigenous diets, we see that our Paleolithic ancestors, they consume more fresh greens, young leaves, flowers, ripen on ripe fruits, fresh and dried seeds, roots, tubers, pits, bark, and even insects. In fact, our paleo ancestors are eating pretty much the same diet as wild chimps are today.

In parts of Asia and the Middle East and Africa, many of these diets, they still contain many foods that are preserved and prepared through traditional methods as opposed to Western diet or American diet where we have more modern diet food, a modern diet, and the food is preserved by more modern and urban and industrialized preservation methods. So we're no longer cooking with wood fire. We're not preserving our meat and fish with wood smoke. Instead, we're canning things and refrigerating them and bottling them and sterilizing them and controlling the fermentation instead of letting it occur naturally. Or aging cheeses in very cool, keeping fruits in fruit cellars and root cellars and aging cheeses in natural, you know, underground environments where they mold naturally. We're using molds to actually quickly age them and things like that.

The modern diet is full of -- has a high intake of ready-to-eat processed and ultra-processed foods. About 50% of the diet is in refined carbohydrates cooked at very high temperature; 30% is animal products and refined oils; and only 20% of foods that we currently eat are similar to our paleo ancestors.

Our modern diet is associated with what they call endotoxemia, which the middle of that word, tox, toxemia, like toxin. What we're seeing is that there are toxins that do arrive from the digestive tract, and that's being studied now. So in our gastrointestinal tract where we digest our food, we're seeing that -- researchers are finding microbial toxins, what they call endotoxins, or food-derived toxins. And then what they call the AGEs and the ALEs. These are compounds

that are created when you cook foods at very high temperature, and it causes, kind of, cancer-causing compounds called AGEs or compounds that harm cell growth or damage the cell membranes. And they also find microbes and microbial debris.

So the paleo deficit disorder, they are also looking at our kind of mental health and its relationship with stress and urban overload. We don't go outside and breathe the fresh air enough anymore. We're not sitting in the sun and swinging in a hammock and listening to the birds. Our skies are smoky, our streams are polluted, we've got decreased vegetation and tree loss. We're not seeing wide open forests and smelling fragrant flowers and songs of birds. You know, we've really altered our environment.

We have global mobile communication technologies spanning a new term of cognitive overload. We're overloading our brain. We have overwhelming consumer choices adding to decision-making overload. We have pervasive distraction in modern environments, and they're studying as this link to ADHD, we're constantly distracted.

Now our brain is signaling reward for information-seeking and social media, not food and water like in paleo times. We're exposed to bright lights 16 hours a day, it's altering our hormone signaling and our brain chemicals and impacting our chronic disease risk. The urban environment, we're increasing our kind of fight or flight response and our brain activity that's geared toward stressful environments and predators and harmful type of situations versus relaxation and calming.

In fact, when they do studies where they expose people to natural environments and green spaces and put them on nature walks or they have them spend time in nature or even just simply viewing nature scenes on a computer, if you will. But just viewing these flashing scenes of nature or looking at paintings of nature, the studies show that people have an improved stress response; that they have more relaxing brain waves. They lower their blood pressure and their heart rate; they improve their memory and their mental focus; they have lower pain and anxiety. They've even looked at something called tree density, like the tree density of tree-lined streets and neighborhoods.

The more trees in the area, the lower the stress response. Natural environments have been studied to help improve what they call pro-social behaviors, like helping behaviors and being generous and being altruistic and wanting the most good for others. They've studied how natural environments induce what they call "awe," like the awesomeness of a majestic view, like, picture the Grand Canyon, waterfalls, forests, or water, and they've studied nature connectedness and how it relates to lower anxiety and anger, a more positive mental outlook and greater well being and overall vitality.

These things are important. We're increasingly recognizing the mind/body connection and its role in disease and disease risk, disease progression, disease survival. So, you know, this is really relative to cancer survival.

They've also been looking at calorie restriction and intermittent fasting and how long you fast overnight. Are you eating right up until bedtime? Are you going to bed at 12:00 and eating at 10:00 and 11:00 snacking and then waking up and eating at 7:00? In thousands of years humans were not able to do that. They couldn't be eating 16, 18 hours a day when they had to hunt and gather and grow and, you know, forage and things for it.

But nowadays people are. They're eating 18 hours a day. So having -- doing either calorie restriction or intermittent fasting or having an overnight fast that's 12 hours or 13 hours or even up to 16 hours are studying it may be beneficial. And they're looking at calorie restriction for cancer incidence and cancer recurrence. So not that we want people to lose weight quickly, but calorie restriction seems to have anti-cancer activity as does intermittent fasting. And now they're looking at overnight how long you go fasting before you eat breakfast and its role and even breast cancer recurrence or breast cancer risk.

We've got just a few more minutes. I want to talk a little bit about the microbiome and cancer. Everybody's service has what they call a microbiome. Microbes are just these tiny single-cell organisms like bacteria and viruses and fungi and things like chemist study like archaea and protozoa are parasites. We've got over a trillion microbes living on or inside the human body. The microbiome is the genetic material of all these microbes just like they've been mapping the human genome or our genes. They are now tracking and mapping the microbe genes.

And the gut microbiome has really been recognized as what they call a super organ or even a potent bio-reactor, which controls so many metabolic or metabolism functions in our body, many unknown. But now they're linking the microbiomes to things like acne, asthma, allergies, autism, autoimmune disease, and cancer, really relevant to us. Other conditions, too.

Interestingly, plants and animals have microbiomes, too, and so do humans who live together, they share very similar microbiomes as they do with their dogs that live with them compared to their neighbor's dog. Meaning that you and your dog and you and your spouse are partners. Our children have many of the same types of bacteria virus, fungi, archaea and protozoa living in and on your bodies.

So they are now studying the breast and ovarian cancer, what they call microbiome signatures because researchers have known for some time now that things like Epstein-Barr virus or human T-cell leukemia virus or the HIV virus or hepatitis B or hepatitis C or H. pylori. There are many different microbes, bacteria and viruses and even fungal that are involved in liver, like fungi, that are involved in liver cancer, like aflatoxins and mold. And so we do know that there's a relationship between these different microbes and cancer risk.

And so now they're studying, again, ovarian cancer and breast cancer, the role of the microbiome in either developing, worsening, or slowing cancer growth, and they're also studying the microbiome to figure out can they develop new targeted immunotherapy in these cancers. In fact, right now, the Mayo Clinic has an ovarian cancer microbiome study underway. It's too soon to really make specific recommendations for how you could alter your microbiome, but there have been a number of studies looking at positive and negative effects of foods and nutrition on the gut microbiome, so it's a good place to start.

We know the bad things for the gut microbiome are the Western diet, the American diet -- high in calories, frequent snacking, simple sugar, sweet in beverages, high carbs, high fat milk, high alcohol, red and processed meats, low dietary diversity or variety, lots of fast food, excess omega 6's and vegetable oils, artificial sweeteners, high temperature cooking, emulsifiers and gums and maltodextrins, which are all these additives that are added to these processed and ultra-processed foods. And now they're even studying things like different medications, like metformin and antacids known as PPIs that suppress acid, and their affect on the gut microbiomes.

So these things are all harmful, which kind of sounds like the things we've been hearing about cancer and heart disease, right? Most of these things have been found to be harmful in cancer and heart disease. Well, it's no surprise they're harmful on the gut microbiome. Some things that have been shown to be healthy and have a positive effect on the gut microbiomes are breastfeeding, a plant-based diet, high dietary diversity, high vegetable and fruit intake, fiber, resistant starch, fermented foods, Omega-3s, leafy greens, seaweed. Interestingly, coffee -- I'm sure you may have questions in the question-and-answer period in a minute. Tea, red wine, chocolate, real naturally aged buttermilk, intermittent fasting, longer nighttime fasting, and then what they call circadian alignment. Kind of, getting up in the light and going to bed in the dark, which not all people do because we do have people who have night shift work.

But these have all been found to have a positive effect on the gut microbiome, and I'm looking forward to seeing more research moving forward on the vaginal microbiome, the urinary microbiome, the oral microbiome, all of what the next decade and two decades will bring us in the scientific research.

That said, I want to emphasize no one-size-fits-all diet. Really, anyone diagnosed with cancer, living with cancer, really should have individualized medical nutrition therapy. And registered dietitian/nutritionists, we call it ADIME. You should undergo assessment, diagnosis, intervention, monitoring and evaluation plan for your cancer. You should find a registered dietitian/nutritionist. One resource is eatright.org. They have a "find an expert" directory. You can search by zip code and specialty so you can search for a registered dietitian/nutritionist who specializes in cancer or oncology nutrition, who specializes in integrative and functional nutrition, weight control, pediatrics, et cetera.

You can call your insurance plan to ask about medical nutrition therapy, nutrition counseling, and preventive health benefits to see if you're eligible in your insurance plan. You can find a registered dietitian/nutritionist at your local cancer center or ask your doctor for a referral to an RDN.

There's my e-mail for questions. (info@nutritionhealthny.com)

Marlene Stager: Thank you very much, Mary Beth, for a wonderful and informative presentation. At this time, we will open it up for questions. What I'm going to -- go ahead.

Caller #1: I have ovarian cancer, I've had it for four years. I'm taking the fruits and veggies vitamins. What do you think about vitamins, especially fruits and veggies?

Mary Beth Augustine: Okay. So if we look at the Japanese, Mediterranean and vegetarian diets where we studied people for -- populations for years and years and years living on these diets, they don't sit down in Greece or Spain or Italy or Japan or Seventh Day Adventists, they don't sit down to a plate with pills on it. And I mean that respectfully, because I use dietary supplements in practice every day, but I use them short term not long term. There's not enough scientific data on long-term facing effectiveness, and that means not enough long-term data on disease outcomes, like cancer risk, on cancer recurrence or cancer survival.

You cannot compare a few pills -- humans eat about 1,800 pounds of food per person per year, so you can't compare that to a few thousand milligrams or grams of nutrients. So they're not meant to substitute for your vegetable and fruit intake. Next question.

Marlene Stager: Go ahead.

Caller #2: Yes, my question is do you think that eggs that you buy from an actual farm where they're laid at the farm are better for you?

Mary Beth Augustine: A great question. So farm-raised eggs have been looked at, farm-raised eggs as well as milk. They've been studied for the things like asthma and allergy in children growing up on farms. There's not enough data to really say, like, "Oh, we have thousands and thousands of people who have consumed a lifetime of farm-raised eggs." But what you do have are farmers whose children grow up on farms and eat farm-fresh eggs or farm-fresh dairy, and some of the studies do indicate that they do have different kind of immune responses, meaning they have less allergies and less asthma. And I think that's very interesting. I would have to say I can't give a conclusive answer about which is superior or better, but I do think I look forward to more research on why did they have this different immune response and because I did talk about bacteria and virus and fungi in our natural environment, you know, again, there's pros and cons of bacteria and virus and fungi in our environment.

They've looked at studies of autoimmune disorders. Maybe we're creating too much of what we call a sterile environment. They are studying things like what they call the hygiene hypothesis, like, maybe we're antibacterializing too much of everything in our environment, sterilizing too much. So they've looked at, even with my cancer, Hodgkin's disease, they've looked at cancers that occur more commonly are diseases that occur more commonly in only children or children without siblings.

So I think that there's something there, but I don't think the evidence is strong enough to say. I will say, make sure you know that you do have a safe food source of your eggs and that you can tell how they've been handled. You know, we do want to avoid bacterial contamination with things like E.coli. But great question.

Caller #3: The question I have is I've had early-stage breast cancer, and I'm on Anastrozole, also known as Arimidex. It's been very hard for me to maintain a healthy weight with this medication. You know, I was told that it kind of slows the metabolism down. I don't know if that's actually true. I just wanted to know your thoughts on that, you know, how it relates to diet and maintaining a healthy weight.

Mary Beth Augustine: Okay, great question also. These are all great questions. So I come from a very obese family. I've been obese in my life. I've had a thyroid condition for 30 years, I've been in and out of menopause since my 20s because of my own chemotherapy. And I can assure you with much of the nation being overweight and obese, this is a very challenging area.

That said, I've also lost 80 pounds in my life. That's the healthiest weight of my life and, at the time when I was obese, I was a nutritionist with lots of knowledge and lots of skills. But that doesn't always mean that you can be a healthy weight. What I would say is meet with a registered dietitian/nutritionist. Your long-term survival depends upon it. And I know people don't like to talk about survival, but I believe we're surviving every day from the day of diagnosis.

And you need the tools and the support and the skills and the problem-solving and the coaching and the strategies that help you achieve and maintain a healthy weight. So if you have insurance, you know, call your insurer, check with your cancer center, look for free resources, get a buddy, do whatever you can to achieve and maintain a healthy weight, because it will

protect all of your cells, all of your organs and give you the greatest, longest, healthiest life.
Next question.

Marlene Stager: Mary Beth, could you quickly speak to the benefits of soy, including the best way to eat it and if tofu is okay and helps.

Mary Beth Augustine: Good question. This question has been around for 20-something years, since I worked and Memorial Sloan Kettering Cancer Center. There's still a lot of misinformation out there. People are told to avoid soy altogether. So I recommend soy foods consumed the way they do consume them in Japan and in Asian populations, which means what we call first-generation soy -- tofu, miso, edamame, tempeh. I'm not talking tofu pups and tofu scramble and mock chicken, you know, meat substitutes, but eating the minimally processed and whole food soy, it seems to be protective. It may be more protective in the Asian population, because they've evolved on that diet. They've even looked at studies of the bacteria in our microbiome, in our guts particularly, which helps people actually metabolize the soy in a more beneficial way. They're called Equol producers.

There's always a complicated answer for these type of questions, but after reading thousands of papers, I can say that soy foods have gotten a bad reputation. And if you're consuming soy as they do in Japan and Asia, tofu, miso, tempeh, and edamame, they're fine to include in the diet. And not everyone in the cancer center knows this yet, unfortunately.

Marlene Stager: One of the questions is do you have a list of what you consider white, tan, and brown vegetables? Is this something that someone could e-mail you at info@nutritionhealthny.com to get that information?

The question is this person has heard dairy increases a growth factor and interesting to see that dairy is included. What's safe and what is not regarding dairy?

Mary Beth Augustine: Yes, so, you know, that's the difference between the Mediterranean and the Japanese diet. In 1967, these -- and 1980s -- the Mediterranean in Greece and in Italy they did consume dairy and in quite higher amounts than they do in the Japanese diet. The vegetarian diet, LactoOvo, also consumes dairy, and we know from these populations that it's protective against cancer incidence and protective for cancer survival.

Interestingly, we don't -- Americans don't consume dairy quality like they do in the Mediterranean. American dairy has bovine growth hormone in it, which is not allowed in Europe. American dairy has lots of colors and additives and dyes, artificial aging process not natural aging process, also shredded cheese, which they add anti-molding compounds to. So we're not eating Mediterranean quality dairy.

If you choose to include dairy, I say include Mediterranean quality dairy. There have been some studies looking at the fat content of dairy, that have looked at insulin growth factor in relationship to dairy, but unless you have high blood sugar and high insulin and high insulin growth factor, I don't recommend limiting dairy. But it is a personal choice, but I do believe if you're consuming Mediterranean quality dairy, that it can be included in an anti-cancer diet. And then the organic question you asked.

Marlene Stager: Yes, go ahead.

Mary Beth Augustine: Yes. So there are definitely studies examining the phytonutrient content of organic produce. So vitamin and mineral content may not be drastically different in organic versus conventionally farmed produce. However, phytonutrient content, plant nutrient content maybe. The best example is grapes, organic grapes versus non-organic grapes. Organic grapes have more what they call Resveratrol, and Ellagic Acid. Resveratrol looked at for heart disease but also cancer, anti-cancer activity along with Ellagic Acid. And the grape produces it in response to fungus in the environment. Moldy crops, they're going to produce their own Ellagic Acid and Resveratrol. The plant does it to protect itself.

And so by spraying it with pesticides and fungicides, the grape doesn't produce it. So I think the difference, really, is in phytonutrient content, not vitamin and mineral. And what we saw from that dietary diversity study on DNA oxidation, it's about the phytonutrients. So I prefer organic produce, especially in hormone-related cancers. That's the other piece we see that many of the pesticides have what they call endocrine disrupting activity that they impact our hormones, and we see this in humans and in animals that have been exposed to high amounts of pesticides.

I think that's it. I think I got as many questions in as I could in the time. Is that right, Marlene?

Marlene Stager: Yes. And, again, if anyone was not able to ask their question or submit their question, Mary Beth, again, very generously -- I believe the slide is still up for you to see. And, certainly, if you didn't get her e-mail you can contact the office, and we will be happy to share it.

Thank you, again, Mary Beth, for so generously sharing your time, expertise, dedication and commitment to the cancer community.

Mary Beth Augustine: My pleasure.

Marlene Stager: Thank you all for joining us tonight.

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