



Carrie Callas ([00:00:00](#)):

Thank you for attending our program today, Nutrition and Leukemia: Your questions answered. My name is Carrie Callas. I'm the Director of Programs at Leukemia Research Foundation. We are pleased to present this program today in partnership with the Cancer Wellness Center. The Leukemia Research Foundation's mission is to cure leukemia by funding innovative research and to support patients and families. The foundation has raised over 84 million in support of its mission and has funded research grants to over 600 new investigators worldwide to help them advance their research. In addition to supporting leukemia research, we support patients and families by providing free programs and resources including educational programs, like this one you're attending today, disease and treatment information, peer support programs, financial assistance, and a directory of other helpful organizations and resources.

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I encourage you to visit our website, leukemiarf.org, to check out these resources, including some newly released disease and informational content and to register for upcoming educational programs. Next week, on May 17th, we're hosting a program on chronic graft-versus-host disease with Dr. Adekola from Northwestern. You can find information for that on our website. The Leukemia Research Foundation and Cancer Wellness Center have partnered to offer many programs through the years and we are honored to work with them as they do great work to support cancer patients and families. With that, I'd like to turn it back over to Savina, who will introduce the Cancer Wellness Center and our speaker today.

Savina Chacheva ([00:01:48](#)):

Thank you so much, Carrie, for the warm welcome. As always, it's a pleasure partnering with you and the Leukemia Research Foundation on these important education topics. Good afternoon everyone. Thank you for joining us today. For those of you that are new to the Cancer Wellness Center, I would like to take a minute to tell you more about the center and the work that we do. The Cancer Wellness Center was founded in 1989 as a nonprofit organization with the mission to improve the physical and emotional wellbeing of those impacted by cancer and their families.

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Our services, which are both virtual and in person, include education programs, like the one today, that aim to help you navigate the varied challenges that come with living with a cancer diagnosis, wellness classes, like yoga, meditation, stress reduction and more that provide a holistic approach to healthy living, and support services, which include counseling for individuals, families, couples, children, and those bereaved, as well as support groups for those that are impacted by cancer to help people manage the emotional and mental impact of cancer. If you would like to learn more about the Cancer Wellness Center and connect to our free programs and services, please visit cancerwellness.org and I'll put the link in the chat for you. Before I welcome our presenter, please note that this program is being recorded and your audio is disabled.

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If you have any questions, please add them in the Q&A section and we'll address them at the end of the program. Now, lots of questions were submitted and we'll try to get to all of the questions today. If we don't, we'll take note and send you a follow-up after the program. Following the program, you will receive a short program evaluation from Carrie at Leukemia Research Foundation. Please take a couple of minutes to complete it and share your feedback with us. We really value it and read through each one



individually. Thank you so much. Now without further ado, I would like to welcome our oncology dietician, Lori Bumbaco. Welcome Lori. Thank you so much for being here.

Lori Bumbaco ([00:03:48](#)):

Good afternoon and thank you so much, and maybe good morning, and maybe good evening, because I understand there are quite a few, an impressive number of you registered for the program throughout the entire country. My name's Lori Bumbaco. I thank Carrie and the Leukemia Research Foundation for this partnership, because I get to do my job. I get to be a reliable source of information for you and I am excited to share my presentation in this setting. What I enjoy most about presentations are when I afford you all the opportunity to ask me questions, because I think you asked such insightful and helpful questions that I want to be able to really get to the bottom line for you and give you not only what the current state of the science says, but also some practical tips.

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Hopefully, whether you are just diagnosed and you're curious about some of the information you came across, or you're someone who is watch and wait, or you're someone who's in remission, maybe I can give you some helpful tips today. Raise your awareness about something you may not understand or even just give you some reassurance that you're on the right path. Thank you again and welcome everyone. Just a little bit about what I do here at Cancer Wellness Center is, as an oncology dietician, I work with individuals one on one, so I get to be with people and provide them not with cookie cutter advice, but unique suggestions based on their individual circumstances. I also get to present programs like this one.

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We have a monthly program called Ask the Dietician, very similar, where people will ask me questions and put me on the spot. Then, we also have a lot of other programs that I'm involved with. I want you to check out the calendar on the Cancer Wellness Center's website, because we have a lot of great things coming up that you might be interested in. Without further ado, I'm going to share my screen and share with you my PowerPoint. Those of you who registered, thank you. Those of you who are watching this recording, thank you. You will receive a copy of this PowerPoint presentation.

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Now, I think there were over 30 questions that were submitted. I only have an hour and I could probably dedicate an hour to answer each of the questions. Because I can't do that today, I'm going to do my best to give you really the bottom line and hopefully give you some helpful tips. Nutrition and Leukemia: Your questions answered. On the agenda, I'm going to go through those questions, and then if we have some time at the end, I think sometimes when you watch a presentation, it might stir up more questions that you have and I'd like to be helpful for you to be able to do that. Then as always, anytime I'm given the opportunity to present, I like to share helpful practical tips and resources.

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So I have resources to share, but also a recipe that sort of combines all of the answers to all of these great questions in one single recipe. Hopefully, you'll enjoy that. Now where I am in Illinois, you might not know it today, but spring is here and I always think of spring as sort of nature's way of saying, "Let's party." I love this quote by Robin Williams and that certainly is the case for some of our produce, that we're excited to enter this time of year. Throughout my presentation, you're going to see sort of an homage to some of our favorite seasonal spring fruits and vegetables. For this presentation, because

there were so many questions that were submitted, I thought I would group those questions into categories and this is what it looks like.

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We have general nutrition for leukemia, specific food questions and then specific diet questions. This is sort of like part one and part two of that category, nutrition for risk of progression, questions about supplements, and then lastly, symptom management. Let's start first with that first category, general nutrition for leukemia. I think this is a great question. I am looking to understand what the best foods to eat are as well as what not to eat. I would say this is probably the most common question that individuals ask me. There were similar questions to this one, and I have them listed here on the slide. Hopefully if you submitted one of these, the information I'm about to present will help to answer those questions.

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Before I do so, I want to say that a registered dietician, especially one who's board certified in oncology nutrition like myself, can best provide you with specific nutrition guidance. This is not cookie cutter information and that is very often what individuals I work with, that's what they encounter online or even from their healthcare provider. They're not given a specific plan, and that's what a registered dietician can do. Now, in general, we do know that survivors are advised, no matter what you're diagnosed with and at what time where you are on your continuum of cancer care, you are advised to consume a diet pattern that emphasizes whole plant foods. I'm going to talk a lot about that today.

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Why a diet pattern compared to specific food choices? Why does an overall diet pattern matter? Well, the evidence I will say, right now, for diet and hematological malignancies, it's inconclusive. It's a work in progress as I would say. What we do know is that a total diet combines all of the potential cancer protective compounds rather than just isolated choices from here, from this food or that food. An overall diet pattern really best reflects the way that we eat. We don't just eat one single food at a time, usually. Here's what experts advise that we limit. We limit highly processed food, sugary beverages as well as alcohol.

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Those are the things that they suggest we limit. That's because highly processed food contains little to no nutrients, and at the same time, it combines a concentrated amount of really non-nutrients, so sugars, and salt, and then saturated fats. Sugary beverages, as we know, are linked with weight gain and weight gain sort of creates this metabolic environment in the body that may be conducive to the carcinogenic process. Now this is helpful to know what to limit, but most often I like to encourage what we can eat. This is more important, what do the experts say we do eat? They want most of our meals and snacks to come from whole minimally processed plant foods.

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You see the list there, vegetables, fruit, whole grains, beans, lentils, nuts and seeds. I think this is nothing new. These are all nutrient dense choices. What they do is they saturate the body with the vitamins and minerals that we need, but also with fiber, antioxidants and phytochemicals, and a lot more to share about that as we go through the presentation. This whole food, plant-based diet, it's not vegan or vegetarian even, it just needs mostly plant foods most of the time. I think it's a lot easier to pursue than you might imagine. It's some of our favorite meals that you might already regard as healthful choices or you might already enjoy are considered whole food plant-based diet choices.

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You see some on the slide there. Now, what's so special about this way of eating is that the compounds within this pattern fight cancer cell formation, replication. They rebuild healthy cells, including our immune cells, and that's very important for us. It reduces certain types of inflammation and is associated with desirable body weight. For all of these reasons, we're sort of combating cancer in the carcinogenic process all in one package. If I were forced to say, what should we minimize, this is what I would include. I would say let's minimize sugary beverages because they are very palatable and we tend to over consume them and they are linked with weight gain.

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Processed meat, as well as burned meat, they seem to possess some carcinogenic compounds. Ultra processed food, you see some of my choices there on the slide and I'm going to talk about that in a moment. This is definitely characteristic of the Standard American Diet, right, so far. Then, alcohol as well. Alcohol as it turns out, may metabolize into a carcinogen. If we can minimize all of these choices that would be in our best interest. What do we choose instead? If I were again forced to list these cancer protective choices, I would list cruciferous vegetables. There's a whole family, including cabbage, cauliflower, and broccoli, but there's a whole family of choices to enjoy.

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Berries, whole grains, and then beans and lentils. Now Americans, and our cancer survivors are no exception, we are not eating enough of these foods, so we can do better. I say I have job security, because my job is finding ways to make these foods tasty and deliver them into your body in ways that you can find manageable. In summary, keep in mind the overall diet that we eat matters most for cancer risk. Plant-based whole foods contain the greatest amount of nutrients, and these special, unique compounds for cancer protection and working with the dietician can help establish how best to pursue a diet that meets your unique targets.

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Okay, let's move on to the second category. This is part one of that category. Are there any foods or drinks, such as tea or red wine, that actually kill CLL cells? Good question. There were some that were similar, or at least I would say categorized under this question about single foods. People ask me, "Can I have this? What about chocolate? What about egg whites? What about broccoli? What about the opposite? Can I have sugar?" These are all great questions that I get asked regularly. Now keep in mind, here's what we understand at this point in time, there is no single food or ingredient by itself that causes, or oppositely, cures us from cancer. It's that total diet pattern, that's what's associated with risk for cancer.

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Let's explore some of these questions more specifically with that thought in mind that there's no single food or ingredient that can cure or cause cancer. That does also include sugar. I'm going to take a moment, I'm going to come back to sugar in the next category. Cancer cells adapt and they will use whatever fuel source is available to them. If it's not sugar, they'll find something else to use for fuel. There is no clinical evidence at this point that if we omit sugar in the diet that it's going to exert any extra cancer protection, but there are lots of other compounds that show promise. However, this is only in preclinical data, so not yet ready for primetime, but some of these foods wouldn't hurt to include in an overall cancer protective diet.

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Keep that in mind. If we're only eating something like broccoli, what else are we eating or what else are we not eating? We always want to put it into the context of the total diet. A little bit more about tea, red wine and broccoli. Tea contains some flavones as well as EGCG. EGCG, in particular, works like an antioxidant. What that does is help repair damaged cells that could potentially turn it into a cancer cell. EGCG has been shown to literally intervene directly with cancer cell growth. It helps to kind of stop that process. Red wine contains flavanols, anthocyanins, phenolic acid and stilbenes. Now, what are all these fancy words I'm saying, like EGCG and anthocyanins? They are phytochemicals and they're unique to plant foods.

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We don't have a dietary requirement for them. However, they seem to be what offers us protection against disease and what seems to help support our immune function. That's why there's so much interest in them as part of a cancer protective diet. Now, flavanols, flavonoids, I'm sorry, are a big group, a big class of phytochemicals. There's actually six types or six different groups under the flavonoids category, and they similarly are like antioxidants, so they repair damaged cells, but they also help to support inflammation in a way that suppresses the type of inflammation that we don't want. Flavonoids have also been shown to sort of rev up enzymes that protect us against cancer cell formation. Broccoli, as well as other cruciferous vegetables. You see a couple there listed on the slide, like kohlrabi. How delicious is that?

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They contain something called glucosinolates and they are broken down further into other compounds like isothiocyanates and sulforaphane, as well as indoles, and they decrease inflammation and they also work on those genes. They talk to our genes that turn off, or I'm sorry, turn on the tumor suppressor gene. It's really fascinating what we're learning and what we see in preclinical data, but we've yet to prove this in human trials. That's why we're sort of not suggesting that you only eat these foods. We're suggesting the pattern is what matters most and we have to just wait and see if these deserve any special extra attention. What we also have questions about is that in preclinical data, they give a pretty high dose of these substances that we don't possibly eat in our regular diet.

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Time will tell if it's deserving of more attention still or if we need to be concerned about the dose in terms of our diet. Now what about some of those other specific foods that were listed like chocolate, egg whites? I'm going to go back to red wine and also someone asked about energy drinks. Well, dark chocolate, especially, those that are those products that are 70% and higher, they contain some polyphenols, but I would say just for that reason, that's not necessarily making it a health halo food. It's not necessarily the best choice in a cancer protective diet, but it doesn't hurt to eat it, right? That's because our chocolate tends to be high in calories, and tends to be high in sugar. We tend to want to eat and eat and eat more and then we don't eat all of the other healthful cancer protective foods.

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Egg whites certainly are okay to have, especially because they're a great source of protein, but I always argue that the yolk, so the entire egg is a great choice as well, because it contains all the nutrients in that yolk. You get something called lutein. You also get some vitamins and minerals that are not present in just the egg whites. Red wine, as I mentioned earlier, and all types of alcohol metabolize into a carcinogen. Just because red wine has these anthocyanins and some of those other compounds, it doesn't necessarily render it a great choice in a cancer protective diet. Then energy drinks, I'm going to speak about next, they're considered an ultra processed food. In the Standard American Diet, it's

characterized by these ultra processed foods and energy drinks are a great example of that. They are what experts are finding are problematic for our overall diet.

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We want to try to limit these ultra processed foods if we can help it. Before I get to those energy drinks, I just want a quick reminder that a whole food plant-based diet, this is the way to go. No single food, even the flavonoids, even the EGCG, no single food will ever make up for what's in a whole food plant-based diet. Just a reminder of that. We're going back to that whole diet pattern is what matters most. Now, someone asked a question about what are the top 10 easy snacks to carry? I love this question, because that's exactly what I like doing. I can help you as an individual find what's going to work for you.

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You might not like all 10 of these snacks, but I'm going to give you some options and one of them you might find to be delicious. I think fruit is a great example of something that's portable and certainly nutrient dense. I like to pair fruit with something like nuts. Vegetables also with nuts or with hummus, roasted beans, there are products on the market or you could make your own. Air popped popcorn, you could certainly make your own as well. It's a whole grain, so it's very high in fiber. There are granola bars that I would encourage you to make, because the granola bars we find in the grocery store are basically glorified candy bars.

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I also like to recommend edamame, a great bean that's high in protein as well as fiber. Snap pea crisps, if you're someone that likes the little crunch. Whole grain cereal with dried fruit, that's a great little kind of almost like a trail mix. You can do an extension of that with your own trail mix that you make yourself. I have lots of great ideas, especially if you're looking to gain some weight or you're not eating enough during the day. Energy bites are a great way to pack a lot of nutrition as well as a little bit of protein, certainly the calories in a small little bite.

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Now back to those energy drinks, to drink them or not to drink them. I would qualify them as an ultra processed beverage. Why is that? Well, there's 51 grams of added sugar on average in your standard energy drink. That's the equivalent of 12 3/4 teaspoon. Think about that. If you were to take a 12 or 16 ounce glass of water and put that many teaspoons of sugar in it, I think you would agree that's too sweet. But these energy drinks kind of disguise themselves as being something that's going to be healthy for us when they're not. There is a considerable amount of added sodium in energy drinks typically, and typically they add caffeine.

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That's how they can make that claim that they're going to give us energy. Most products will range from anywhere from 17 to 242 milligrams of sodium, or sorry, caffeine. They're often B vitamins added and they are added at a very high dose. We want to be careful about that if those extra B vitamins are not recommended for us in our condition specifically. There's other additives, such as taurine, or green tea, et cetera. Again, those are some ingredients that we might want to be considerate of depending on our medications or our treatment or our disease process. Now, the research is even more concerning. Some of these energy drinks have been linked with sleep disturbances, stomach aches, increased heart rate and blood pressure, I wonder why, but also metabolic disease and microvascular kidney damage. Interesting, right?

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I think for someone whose caffeine sensitive, you certainly would want to be careful about which of these energy drinks you might want to consume, if at all. Now, did you know you can support your energy levels without relying on an energy drink? The single best way is through activity. It might seem counterintuitive to you, but that is the best known intervention for fatigue, is to be active. The hardest part is just to start. But once you get moving, you will find that that increases your energy. I also, as a dietician, will troubleshoot hydration levels and then review the diet to make sure that it's balanced or adequate in all of the essential nutrients. Then, also fiber, as it turns out, seems to be supportive of energy levels and most Americans are not eating enough fiber. The reason for that is probably because eating fiber regulates blood sugar levels.

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If our energy is related to blood sugar changes, that is one simple way to balance that out. In summary, for this category of questions, no single food or ingredient by itself causes or cures cancer. Keep that in mind. Some choices are delicious and may be specifically beneficial for cancer protection and we want to put them into context of an overall diet. That total diet pattern is what matters most. Keep in mind that eating mostly plant foods and/or a plant-based diet allows us to occasionally enjoy some less nutrient choices. Something like sugary treats, right? They don't have to be eliminated altogether. They can be enjoyed here and there. I have on this slide avocado toast, there's avocado toast, and then there's avocado toast. I would say this is really a great choice here, because it's adding all of those extra vegetables on top, especially the arugula, which is the cruciferous vegetable.

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Category 2B, specific diet questions. I thought this was one of my favorite questions. There is so much confusing information about nutrition, diet and cancer. Isn't that the truth. Some recommend a paleo or a keto diet, others recommend vegan, what is best, especially for CLL? There were some similar questions, especially about keto and especially about vegan. Now I will say this is why I take delight in what I do, because there is so much nutrition misinformation, it's prevalent and it potentially adds more stress and anxiety to you. Now keep in mind that fear and stress around anything, but especially food, it may create more harm than food could ever possibly do.

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This was a research study published just a few years ago, and it was about social media and cancer information. What they found is that there was a lot of misinformation and it was linked to levels of distress. Patients and caregivers were reporting that they experience a lot of cancer misinformation on social media, it contributes to distress. They described that this misinformation negatively affected their confidence. Could you imagine that? They came across this misinformation and now they're not sure how to care for their loved ones and it made them second guess their decisions, which were probably right in the first place. What I understand is that nutrition research, it's definitely subjective to misinterpretation, distortion and extrapolation.

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That's what happens when we absorb this media, whether it be social media or the news channel, they are filtering down research studies to make them sort of sensationalized and they present this information to make it alarming and to scare us, right? Because then, we pay attention to it. It captures us. I think we most importantly need to take a step back from it and understand that there are definitely sources of reliable information, including myself. This is a little more about that research. They found close to half of that social media influence was for profit. Chances are, there was some bias there. Over

a third of the social media content was selling a product. Obviously, it's going to be biased. Health claims were common.

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These health claims are really not allowed. They were reporting that they could prevent, treat or even cure cancer. We know that that is absolutely false. And vague phrases, such as anti-cancer, cancer fighting and cancer busting were also used, when again, that's inappropriate language. Where to turn for reliable information? Your healthcare team knows you best and hopefully on that team is a registered dietician. This team can give you the information you need. If you're also looking for additional online content, I always recommend the American Institute for Cancer Research. They are really the gurus of diet and cancer. Their website, aicr.org, is updated, it's user-friendly and lots of great tips about nutrition.

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Let's move on to a ketogenic diet. I can probably spend two hours presenting on this topic, but this question still remains, does sugar feed cancer? Just for clarification, a ketogenic diet may not be what you think it is, it's less than 50 grams of carbohydrate per day. Thinking about one of our cancer protective foods, that group of berries, one single serving of berries is already 20 grams of carbohydrate. We're really chipping away at that restrictive diet. Moderate in protein, not even high in protein. That's a misconception that many have. You're supposed to also moderate and sometimes limit the amount of protein you need to eat. That's dangerous for someone who needs extra protein.

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It's very difficult to sustain and that's why they're having a hard time researching it. Up to 75% of the research shows that individuals cannot sustain this diet. It's too restrictive for them. Speaking of research, what we do know at this point is that it's inconclusive. We cannot, all of the experts across the board are saying, "We cannot consider this as a benefit just yet as a part of cancer treatment." That's the operative word here, a part of, right? It's not an alternative to treatment, it's a part of treatment. Now, concerns also arise from the fact that cancer cells have been shown to adapt. Meaning that if we go on a ketogenic diet and we are metabolically in a state of a keto adaptation, we're going to create ketones.

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Well, some cancer cells have been shown to actually use ketones for energy. We're sort of shooting ourselves in the foot if we do this restrictive diet. This was a research study, this is an image, and I know it's complicated. Here's what the breakdown of this image from this study suggests. This was published just a few years ago. The preclinical studies on the left, you see that pie chart. Preclinical data means it's done in vitro, so a test tube or a Petri dish, and then also some animal studies. There's a lot of interest here, but it's at this preclinical level which we really have to take with a grain of salt, because it does not translate to what happens clinically in the human body. Clinical studies in humans, especially for hematologic malignancies is lacking.

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If you see on the second image from the right, those are the clinical studies and there are currently no leukemia research studies. What's the summary of this image is that more research is needed. That's where we stand still. As exciting as this might be, we still have to pause and just wait for some time to see if any of this will develop further. This is another study that was published in JAMA Oncology just last year. It's actually not even a year old, this study. I actually really love this study. It's comparing a

whole food plant-based diet, and not vegan, just whole food plant-based diet with a ketogenic diet. They did a head-to-head. It's a review article and it's from oncologists as well as researchers out of Memorial Sloan Kettering.

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What they wanted to see is, out of all the research that's being done on either of these two diets, how do they compare? How do they compete? What's the information suggesting? In this particular review article, as it turned out, the whole food plant-based diet won. It seemed that this offers the most protection against the carcinogenic process. They looked at all different kinds of different studies. They included all cancer types, and this is what they came up with. This is their summary. Again, less than a year old. This is hot off the press. Now what's also very interesting to point out is that there are tons of studies on the ketogenic diet. There's less so on the whole food plant-based diet.

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That's a shame, because it looks like this might be more promising, and yet the research isn't there to support it. What I wanted to point out is that the ketogenic diet specifically may raise this particular compound called beta hydroxybutyrate, and it may have a very specific indication that doesn't transfer over to hematologic malignancies. That's good to know, right? Because then, we understand this ketogenic diet doesn't apply to all. That's only this unique situation, does it maybe potentially work. On this whole food plant-based diet, look at all the benefits. These are unique to the whole food plant-based diet that the ketogenic diet does not benefit from. We cannot achieve these benefits on a ketogenic diet. I think that is a shame. We're missing out on all this potential, all these opportunities to exert cancer protection from a whole food plant-based diet.

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I think the other important point to make about this image is that you'll notice a reduction in insulin and inflammation for both the keto and the whole food plant-based diet. Isn't that interesting? For those proponents of the keto diet that say, "You have to do this, because it's the only way to lower insulin," well, a whole food plant-based diet can do that too. Now, we see that there's maybe potential to this whole food plant-based diet. In summary, research about nutrition and diets is emerging, yet this is a very active area of interest. We have to stay tuned, but I do at the same time want you to stay informed and to use trustworthy resources. Experts advise that an unprocessed whole plant food diet provides the optimal nutrients that exert cancer protection.

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Our third category, nutrition and disease progression. This is a great question. I am in remission now for almost a year, but I'm curious to see what I can do nutritionally to help keep this away and prevent my AML from returning. Congratulations. That's amazing. There were similar questions about sort of like this, wait and watch, wait and see. What about relapse? Then along those lines, what about the immune function? I thought that was important to kind of put into this category. There was a great question about boosting the immune system here. Now again, a dietician can assess and recommend specific nutrition goals for you.

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If you were on treatment for AML, what's your current nutrition status? For example, treatment can render someone to become malnourished or really change their body composition. There's a loss of muscle sometimes as a consequence of treatment. The first step would be to reverse that malnutrition before we even worry about remission, right? Because you're compromised and we would want to

make sure we optimize your health first and foremost. Now, I think this is a great question. Does nutrition matter for recurrence? That's what we're really basically asking here. I wish I had a better answer, but the evidence is lacking as it stands right now. However, the experts say that the very mechanisms that are cancer protective in the first place, they still exert cancer protection across the continuum.

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They do advise that all survivors consume a cancer protective diet, so the very same diet you would eat if you're trying to prevent cancer. It looks like that's a whole food plant-based diet. An interesting study that was published within the last year is about this Western diet. They compared it with other diet types. This Western diet interestingly was associated with an increased risk for CLL. They weren't looking at AML in this particular study. Unfortunately, there were no studies, but we did find this one. The SAD diet, or the Standard American Diet, is characterized by highly processed food. You know this highly processed food, when you say it's junk food. Now, why are these foods so problematic?

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Well, what happens when we're eating a lot of them is that it replaces nutrient dense foods that possess cancer fighters. It may also alter the gut microbiota, and that's going to negatively impact our immune function. Also, this way of eating can contribute to inflammation. We know all of these are problematic when it relates to cancer and the carcinogenic process. This whole food plant-based diet, again, I can't emphasize it enough. The Mediterranean diet is a great example of a plant-based diet and has been shown to lower inflammation. It is high in fiber.

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We know that a high fiber diet will support the beneficial gut microbiota and also provides a hefty dose of antioxidants and phytochemicals, all things that help to fight cancer and, as it turns out, support immune function. Speaking about immunity and food, does food boost immunity? Well, it's a little bit more complicated than that very simple phrase. Many of you may know this or you don't, most of our immune function resides in our gut. It's called gut associated lymphatic tissue. Overall diet patterns are linked with beneficial gut microbiota. If we're eating a certain way, then we're benefiting our gut microbiota and supporting our immune system essentially, but we do not know any specific foods that boost our immune function.

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What we want to do is consume a whole food plant-based diet, because that's going to support the gut. That includes fiber, antioxidants and also vitamins and minerals that are necessary to support immune function. I would also include on this list fermented food, because fermented food, like pickled vegetables or fermented dairy, they also add some probiotics or beneficial microbes to the gut on a regular basis. If I were forced to make a list of foods that we might want to include on a diet that will help support our immune function, this is what I have. Green leafy vegetables, orange, red and yellow fruit and vegetables, citrus, nuts and seeds, beans and lentils, fermented dairy, as well as fermented dairy alternatives, so read your labels, because you will see some cultures on some of those alternatives.

[\(00:37:50\)](#):

Now, all of these foods are sort of like this whole plant-based diet. That's what I see. But also, specifically they're offering us things with some nutrients, like zinc, and vitamin C, as well as carotenoids. All a super important parts of a diet that will help support our immune function. In summary, research about nutrition and diets is emerging, yet an active area of research. Stay tuned

about more information about immune function as well, as well as this important role of diet to help prevent recurrence. We know a lot about diet prevention in the first place, but what about recurrence? We're just going to need more time to see. But chances are the very foods that we're eating to prevent cancer in the first place will also protect us down the road. Immune function cannot be supported, or it can be supported, sorry, not boosted by eating a whole food plant-based diet.

[\(00:38:51\)](#):

This is our next group of questions. I forgot about that list. This is our fourth category. Can you briefly discuss supplements that might be recommended? Similar question. Any advice on supplements post-treatment? Unfortunately, the experts in cancer organizations advise against the use of supplements in cancer treatment and survivorship. Unfortunate in that I don't have any great suggestions to offer you, but I do have this information to share. What we do know is that dietary supplements are not regulated and they have not been shown either to be effective in cancer care. Dietary supplements, we just don't have any evidence right now, research lacking, but we do see that maybe there is an exception for someone who might be deficient.

[\(00:39:35\)](#):

Someone who has a clinical deficiency, we might recommend a particular vitamin or mineral supplement. Herbals and other dietary supplements absolutely need to be tested for safety. That's because some of them may maintain heavy metals, such as lead or cadmium. If you do not want them in your body, I would recommend you be careful about dietary supplements. Many times, the dose that is listed on the label is far less than or far greater than what's actually in the supplement. Dieticians use this expression called food first and supplements second, and that's because food itself contains everything that we could possibly need in the right amount.

[\(00:40:14\)](#):

I also like to think about food as being a package of nutrients that interact in more ways than one to offer us protection from cancer. Taking a single supplement, we can do better than that. We're not really hitting the mark with that, right? When we eat a pattern of foods with a bunch of different nutrients, then we're giving ourselves the best optimal protection. A good example is something like vitamin C versus a food counterpart that's high in vitamin C, like broccoli. Let's see what we could do. We could either take the vitamin C supplement and only get vitamin C or we can eat broccoli, which is going to have vitamin C.

[\(00:40:51\)](#):

It's also going to have potassium, iron, calcium, magnesium, folate, vitamin B6 and other helpful B vitamins in cancer. Then, also those phytochemicals. Glucosinolates, flavanols, carotenoids, you can see who the clear winner is here hopefully. In summary, experts advise dietary supplements. They're not recommended for cancer care. They're not regulated, so we want to be careful about their safety and they may interact with treatment, so we always want to ask our healthcare provider before considering any dietary supplement. They are inferior to the amount of nutrition that we find in a whole food.

[\(00:41:34\)](#):

Our last category, hopefully moving along quite well here. Okay, so our last category is symptom management. How do I feel about high protein or high fat diets for weight gain? There were a lot of questions in this category, so I'm going to do my best to answer them as best I can. Now I will say, if you have lost weight and you have a very poor appetite, meaning you're not even eating half of the amount

you used to please speak to your healthcare provider. You can also request for a referral to a dietician, because a dietician really will have the tools and is best equipped to help you in this scenario.

[\(00:42:14\):](#)

I think this is why I also have a job. When I work in a clinic, I prioritize these patients that are losing weight and tell me that they have no desire to eat. We have to make sure we support them as best as possible. With anorexia, poor appetite and the desire to regain some weight. Calories are really what matters, right? Calories from all sources, not just necessarily protein or fat. I like to recommend bang for buck. As it turns out, fat is bang for buck. We find a lot of calories in a small amount of fat. I think it's very important, as part of an overall treatment, to be multimodal.

[\(00:42:52\):](#)

We want to also think about other interventions that are going to be helpful for someone with anorexia or weight loss. We may consider light activity, we might address any mood changes with prescription. There also are some prescription agents that may stimulate appetite, if necessary. This high calorie as well as a high protein diet, because protein consumption will probably maximize the synthesis of lean body mass or at least optimize the risk of loss of muscle. That's why protein matters too. Most individuals on treatment need more protein. What are some healthful high calorie choices? Those healthful fats, because they're bang for buck. I like to recommend avocado, nuts and seeds very often as well as the butter versions of them.

[\(00:43:41\):](#)

Then, the incorporation of healthy fats like olive oil in cooking or flaxseed oil at the table, because that, in a small amount, is going to add a ton of calories. It's really helpful. We may use some commercial or retail nutrition shakes, because they certainly are very convenient, or we may design our own. If someone likes a smoothie or has a very helpful caretaker that likes to be in the kitchen, this is where nutrition shakes come in handy. There was a question about proteins, especially concerning the potential for some consequences related to treatment. We know proteins matter for almost anybody we're working with, but quality protein from eggs as well as those fatty fish, so salmon, mackerel, anchovy, sardines and herring.

[\(00:44:28\):](#)

They're also high in the type of fat omega-3, that also helps to suppress inflammation. Other tips for this consideration are some light activity. When we're moving, we're moving food through the gut. When it's moving through the gut, then we're hungrier, which is a great thing. We want to approach eating as sort of like a mindset as an overall part of treatment. We can break the rules, so we can eat when the appetite is best. Maybe it's first thing in the morning and we want to have almost dinner for breakfast. There's nothing wrong with that. Then also timing meals and having some sort of external reminder that it's time to eat. What about iron? There were a couple questions related to iron.

[\(00:45:09\):](#)

If you are needing an iron supplement, I would ask your healthcare provider about slow iron. It's like a slow release of iron into the body and this definitely helps control any unwanted side effects of taking an iron supplement. You can also ask, because it was specifically related to CLL in this question, if the disease or if treatment is causing a reduction in iron levels in your body. Sometimes, anemia does not always mean an iron deficiency, and I get asked this question a lot, so we want to just clarify, because sometimes, it's just lower red blood cell production, which could be a part of the disease, it could be a part of the treatment and it might not be related to a lack of iron.

[\(00:45:57\)](#):

We don't want to overdose on iron. That's not beneficial for us. We just want clarification from our team. Now with that being said, we certainly could enjoy some foods high in iron. They come from both and I wanted to list both animal and plant sources. The animal sources of iron really are in the bang for buck. This is where we're going to absorb the most iron, especially from something like oysters, which really stands out to people I work with. Then plant sources. Did you know we can also eat iron in things like white beans and red lentils, even tofu and spinach.

[\(00:46:29\)](#):

But then also some of our fortified products will have iron. When we're eating plant sources of iron, we also want to partner that with vitamin C, which also helps to enhance absorption, so red bell peppers or citrus fruit, potatoes. I like the idea of a tofu stir-fry with some red bell peppers. That certainly would give us a great amount of nutrition separate from iron and vitamin C. Now also, there was a question about iron and bone health and how they might be counter productive. First and foremost, for bone health, we do know that a whole food plant-based diet supports bone health. There's been research about that as well. It's interesting how it checks off a lot of our needs, this whole food plant-based diet.

[\(00:47:13\)](#):

But if you're eating for bone health and you are required to take an iron supplement and you also maybe are taking a calcium supplement, you do want to separate the two. There is an interaction and there will be a reduction in the absorption if we combine the two close together, less so when we're eating foods that have iron and calcium, but we still can separate them. If we really want to make sure we're taking extra precaution, we can separate the two. Okay. But we also know about this plant-based diet for bone health. It's interesting how again, these foods, not just foods high in calcium, but also lots of other vitamins and minerals are supportive for the bones.

[\(00:47:55\)](#):

Something like potassium is very important, but also, intentionally including sub calcium rich food and just really a couple servings a day may help us come very close to our goal. Things like yogurt and other dairy products, but also fortified tofu is actually, if you look on your label, very high in calcium, but there's some other choices listed on the slide there as well. Now what about pancreatic dysfunction and diarrhea? There was a question about that. I would suggest, if you're taking enzymes, review this with your medical team. It might be some time that you've been on it. Just maybe start from scratch. You want to take the appropriate dose at the appropriate time, and that's what's really going to help best maximize those enzymes.

[\(00:48:37\)](#):

You may need an iron reducing medication, because the intention of taking enzymes is to bypass the stomach, and if the stomach is too acidic, they may render those enzymes less effective. Sometimes that's needed to piggyback those enzymes. This has happened I would say a handful of times in my almost 20-year career, sometimes people need different types of enzymes. It just seems like maybe that one brand isn't working for them. That's another question to ask. Now, here's what we know about diarrhea. There are some foods that will help manage how liquid our diarrhea is and then how frequently we have diarrhea.

[\(00:49:17\)](#):

Soluble fiber is definitely where it's at. It will help slow the gut down and add bulk to a stool. Bananas, oats, potatoes and applesauce are really what make that list to help slow down the gut. I often also

recommend rice, and it's in all caps, because it's probably the single best thing, white rice, for diarrhea. Then, I have a great recipe for rice congee and you just basically cook long grain rice in triple the amount of water for a long period of time and then you can sip on that broth and it's really a nice soothing thing for the gut. My timer's going off. Sorry about that. I know I'm on time.

[\(00:50:03\):](#)

Okay, and then also banana flakes. There's some commercial products on the market that make banana flakes, and sometimes we incorporate them at the time that someone's eating. This helps to make sure that the gut is also slowed down no matter what they're eating. It sort of seems to be the trick for that. Then also, low lactose and low fat choices might be advised. Really, this is the case for someone who notices that this triggers their diarrhea right after they have something with lactose or maybe they have something high in fat and that just seems to make their diarrhea worse.

[\(00:50:37\):](#)

It might not be the cause, but it certainly doesn't help. That's where a dietician can help, because we want to make sure we're consuming the appropriate alternatives. I also, as a dietician, will make sure that someone with diarrhea is adequately hydrated. This is great information for anyone who's watching. The best way to assess hydration is to check urine color. Apple juice, the color of apple juice means you're likely dehydrated. There are great color charts that are available. I happen to like this one. You can see on the far left, it's sort of very faint, and we actually don't need our urine color to be that faint. We can fall sort of light pale yellow. It doesn't have to be clear, but as it increases in color, you can see that concentration.

[\(00:51:25\):](#)

Obviously, there is a lack of fluids. I would advise someone to consume enough water to meet their needs. Everyone's needs are different. We're not cookie cutter here, so everyone requires a different amount of fluids. But if you're having diarrhea, you need to absolutely consume another eight ounces after each loose bowel movement. Now, what about heartburn? This is our last question. If you're struggling with heartburn, definitely inquire about any medical management that you might need. Sometimes treatment requires different medications and can change the body's chemistry. You just need that extra crutch and extra support and you might need to take something and not solely rely on diet.

[\(00:52:11\):](#)

I would be remiss if I didn't mention that. Identify your specific and unique triggers for heartburn. This is certainly the case that it's not cookie cutter in that not every food is going to cause a problem for everyone. I would hate for you to restrict yourself when you don't need to. Sometimes the dose is the poison, right? Just like with dietary supplements. Sometimes if you have too much of something, that's when it becomes a problem. Then, it's just learning how much is just enough to make you feel comfortable. You see on the image there, there's like the normal stomach with the lower esophageal sphincter versus one where the lower esophageal sphincter isn't quite functioning properly and it kind of stays open.

[\(00:52:53\):](#)

The little flaps stay open and then the stomach contents travel back up to the esophagus, and that's what causes that acid reflux or heartburn. The most problematic food, and this is according to research, when they survey people, they find large portions. Imagine, no matter what you're eating, if it's a large portion, that's going to be problematic. High fat foods, which makes sense, because fat takes the longest

to digest. That's going to sit in the stomach and really render that sphincter to be ineffective. Then, also spicy food. But then people also list these as specific triggers, peppermint, chocolate, garlic, onion, caffeine, and alcohol.

[\(00:53:33\)](#):

Those might be on your list as well. The other tips to, I think, point out about heartburn is to certainly elevate your head. Let gravity do its work, right? Elevate your head after eating, raise your head of bed while sleeping, and they say about seven to eight inches. If you're in the position where you would like to lose a little bit of weight, especially around your abdomen, that may, or it has been shown to improve acid reflux. Then, adjusting. If you're like most Americans, maybe you eat one or two large meals a day, but adjusting to smaller frequent meals certainly could be helpful.

[\(00:54:07\)](#):

In summary, in total, with all of the questions that were asked, which were fantastic, there are no single foods or ingredients that by themselves causes or cures cancer. A total diet pattern is what is associated with risk for cancer, right? It's not a cause-effect despite what we might see on social media or we might hear from someone. It's not that sugar causes cancer, right? It's associated with risk, and sugar isn't even associated with risk, but I'm just using that as an example. Nutrition misinformation is prevalent and potentially adds more stress and anxiety for someone who's diagnosed. Fear and stress around food may create more harm than food could ever possibly do.

[\(00:54:50\)](#):

A dietician can assess and recommend specific nutrition goals for your unique situation. Please keep that in mind. These are my top three resources. I mentioned earlier the American Institute for Cancer Research, that's our website right there, the Oncology Nutrition Practice Group I belong to. You'll see some great content right on their website. I'm a fan of Memorial Sloan Kettering's About Herbs database. It's free to access on their website and they have a searchable sort of toolbox. You can see, if you want to learn a little bit more about vitamin D for example, you can learn a little bit more about up-to-date information specific to oncology.

[\(00:55:30\)](#):

Now, I promised I would share a recipe and I thought, "How do we combine all of these healthful foods? What's a good example of a whole food plant-based diet recipe?" I think it's a Mediterranean Nourish Bowl, so it might combine whole grains, such as farrow, healthy fats and proteins, such as something like hummus made from chickpeas. We certainly know those cancer protective vegetables, like spinach or other cruciferous vegetables, and then a lot of herbs and spices. I think those are powerhouses that we forget about. What I like about a nourish bowl is that it can be assembled using pre-made ingredients.

[\(00:56:05\)](#):

It's a real time saver and energy saver. Then, you can customize it. Based on your own flavor preferences, I'm going with Mediterranean, but maybe you want to do a Latin inspired nourish bowl. Certainly for your diet, maybe you need more protein, so you're going to focus on adding maybe some salmon to your nourish bowl. That certainly can help really, I think, add to your arsenal in terms of the cancer protective diet. I understand we have a couple of minutes left. I'm going to stop my share here and just see if we have additional questions or comments.

Carrie Callas [\(00:56:38\)](#):

Thank you so much, Lori, that I learned a ton from that. It looks like you pretty much answered the pre-submitted questions that were sent to us, but there were just a couple that came into the Q&A. Real fast, I know we only have a couple of minutes here. One is, what do you think about alternatives to cow's milk? Soy milk or almond milk, what are your thoughts around that?

Lori Bumbaco ([00:57:04](#)):

Great question. If you're replacing cow's milk, my recommendation is to replace it with an equivalent or as close to an equivalent as possible. Soy milk sort of fits the bill there. It has a similar profile, nutritionally speaking. Again, a dietician can best help you find the choice for you based on everything else you're eating or not. Almond milk tends to be, unfortunately, pretty low in protein. It doesn't mean it's not a good choice as long as you're making up for maybe that protein elsewhere in what you're eating.

Carrie Callas ([00:57:37](#)):

Got it. Then, there was a similar question about what are your thoughts on canned tuna or canned salmon? And are they okay?

Lori Bumbaco ([00:57:46](#)):

That's a great question also. I subscribe to something called ConsumerLab and it's really free for the public, not free for the public, but anyone in the public can register. I'm not sure the yearly membership due, but they test products like canned fish and they test it to see what it contains in terms of mercury or other contaminants. Then, also the nutrition content, so how much omega-3 S do they have. I like to offer that to individuals I work with.

([00:58:15](#)):

There certainly are choices that are acceptable, nutritious, safe for consumption and might be preferred over others. I wish I could pull up a product list, but that's the nature of our food supply. It's like ever-changing. I would say you can be safe consuming canned fish. I would say maybe not every day, maybe once or twice a week. Again, if you meet with a dietician, they can give you more confidence about that.

Carrie Callas ([00:58:44](#)):

Yep. Great. Last here is, we talked a little bit about milk alternatives, but is cow's milk bad for CLL? Your point throughout this presentation was that there is not one single thing that is bad, but if you could talk a little bit about cow's milk and if you have thoughts around that.

Lori Bumbaco ([00:59:05](#)):

Really great question. A lot of times I ask, I want to know the reason behind it. Why cow's milk? Did you come across something that said cow's milk was bad, because of this? Sometimes they read that it's inflammatory. This is a perfect example of how we eat such a varied diet that one thing that might be inflammatory, which cow's milk is not. We eat so many other things that might be anti-inflammatory, so it's going to dilute any effect that we might have. We don't need to drink cow's milk. We don't see any research that says it's... although, we don't see any research that says it's bad for cancer, including CLL. We could choose an alternative certainly if you wanted to, but you don't need to be afraid to drink it with CLL.

Carrie Callas ([00:59:51](#)):

Okay, got it. Then our last question and then we'll wrap up real fast, which nuts are best? Out of all the different nuts you can choose from.

Lori Bumbaco ([01:00:02](#)):

This is where you can have so much fun, because the whole family of nuts are great, and for different reasons. I like to say it's what's best for you. Maybe you're looking for some melatonin, so maybe you want to have some pistachios, because they're very high in melatonin. Maybe you're looking for protein, peanuts actually rank the highest for protein source. Maybe you want a lot of vitamin E, so you're going to have some almonds, but they all have something to offer. I think this is where having fun and choosing variety can really take your diet to the next level and think about your choices that way.

Carrie Callas ([01:00:40](#)):

Great. If there are any questions that remain unanswered, we'll take care of that and send them out to you. I think we covered almost all of them. I did want to share that recipe that she talked about a little bit. We will be sending that out to you in the email that has the recording and the PowerPoint. She has very specifics of what you could include in your nourish bowl. We'll be sending that out, so have no fear. Also, please be sure to answer the evaluation when we send it to you. It only takes maybe a minute or two to complete. At this point, I just want to thank Lori for all the time she put into answering everyone's questions on this call. It was very informative. Savina, thank you as well. I didn't know if you had any final remarks here.

Savina Chacheva ([01:01:32](#)):

No, thank you Carrie and the Leukemia Research Foundation for working with us on this program. The questions that I'm getting through the email are just the recording and Lori's PowerPoint, so I think, lots of great questions. You didn't need to take notes, because we will send you everything and always feel free to reach out if you do have something else that comes up even after the program for you.

Carrie Callas ([01:01:53](#)):

Well thank you everyone and have a great rest of the day. Thanks again, Lori. We appreciate it as always.