

What You Want to Know About Nutrition and Bladder Cancer



Part I | Debunking the Nutrition & Cancer Myths

Presented by

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Jill Hamilton-Reeves, PhD, RD, CSO: I want to take a moment to thank all of the participants on the call because you really inspired all of the content for today's presentation. When I asked to give a talk about nutrition and bladder cancer I really was stumped with where do I start, so Stephanie and I put our minds together and came up with this idea for you to send in the questions and it was just a fantastic way to learn more about what you want to know about and hopefully you'll find that we've addressed all of the questions. If you signed up today there's a chance that I may not have seen them so we will have time at the end for you to type those in to the chat box and I'll do my best to address them. I want to acknowledge my team. My team is pictured there in the corner. Many of them are registered dietitians that helped with fielding the questions, digging through the literature with me to make sure that we give you the latest and the greatest of the evidence that's available now although I must say this an emerging area of research and so there will be some questions that may not have answers yet but hang in there and we'll go ahead and get started.



Our objectives today are for you to be able to name 3 truths about common cancer nutrition myths. The second line is to distinguish between foods that improve health versus those that are consumed purely for enjoyment. The third objective is to simplify diet recommendations for specific cancer treatments and then the fourth objective is to summarize the evidence around taking nutrition supplements to fight cancer. We'll go ahead and get started here, right into the contents. Again, this first objective is to identify a truth among the diet and cancer myths. We'll do one more poll here. There will be several throughout and this is just to make sure that you're listening and engaging.

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Common Cancer Nutrition Myths

- Eating sugar will make your cancer grow.
- Artificial sweeteners cause cancer.
- Eating an alkaline diet will prevent cancer.

The first question is can you identify a truth among the diet and cancer myths. A: Sugar makes cancer grow, B: Eating alkaline diet prevents cancer, or C: Which is an alternative sweetener, increases bladder cancer in rats, not humans?

So the first myth, eating sugar will make your cancer grow. To really delve into this I think we need to talk about the truth behind this. Also, our bodies are made of up cells that also use sugar for energy, both cancer cells and healthy cells. It is true. Research shows us that cancer cells consume more sugar than normal cells. However, if you avoid consuming sugar in your diet, our bodies are very smart and they will make sugar from other sources. I have a picture of the liver there because that's the major organ where we would make sugar out of protein products.

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Myth: Eating sugar will make your cancer grow

- All cells use sugar for energy—cancer cells and healthy cells.
- Research shows that cancer cells consume more sugar than normal cells.

If you avoid sugar in your diet, your body will make sugar.

Just to kind of delve a little bit deeper in here, I like to use evidence-based medicine in making decisions and helping inform patients and my colleagues about the date and no studies have shown that eating sugar makes your cancer worse. No studies have shown that omitting sugar intake will shrink or get rid of cancer. I don't have any citations because they are really available. The studies that if you do find some citations, are often from studies of just cells and so it's not a true representation of what our bodies can do to overcome sugar deprivation by making more sugar.



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Myth: Eating sugar will make your cancer grow

TAKE HOME MESSAGES:

- Consider your health status.
 - If you are in treatment and having trouble with eating, do not restrict your diet more.
 - Get your sugar from natural food sources more often instead of added sugars in sweets and drinks, especially if you are trying to prevent weight gain or lose weight.




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The issue with avoiding sugar is that sugar is naturally found in foods that we think of as being very wholesome such as fruits, vegetables, grains, and milk, and these foods really should be consumed as part of a healthy diet. Added sugar, however, refers to the honey, syrup, molasses, or sugar that put into foods to make them taste sweet but they don't add much nutritional value. Part of the truth in the message is that food and drinks that are high in added sugar also tend to be high in fat and calories and they don't add a lot of nutrition and they don't really fill you up. The issue is that most Americans over eat these foods.

Overeating does contribute to being overweight and obese. So in that way sugar could indirectly increase someone's risk but not from the sense of avoiding sugar and then causing the cancer to tumor to shrink, or consuming sugar and then tumors grow.

The take home message from this, the truths and the myths, is to *really consider your health status*.

I noticed that there was quite a few of you that are on the webinar right now that are really in the middle of treatment, and especially if those of you that are on chemotherapy or maybe some of the radiation therapy. If any of you are getting that, or immunotherapy, sometimes you can have some trouble with eating and so the message here is do not restrict your diet more if you're having some feeding some problems. The second message is trying to get sugar from natural food sources so from the sources like fruits, vegetables, grains instead of the added sugars and sweets and drinks, especially if you're trying to prevent weight gain or if you are in a stage of your treatment where it's okay to lose weight and you're trying to lose weight, that's also a good way to cut down on calories.

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Myth: Eating sugar will make your cancer grow

- Sugar is naturally found in fruits, vegetables, grains, and milk. These foods should be consumed as part of a healthy diet.
- Added sugar refers to the honey, syrup, molasses, or sugar put into foods to make them taste sweet but do not add much nutritional value.
- Foods and drinks high in added sugar tend be high in fat and calories without being nutritious or filling. Most Americans overeat these foods.



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Artificial sweeteners cause cancer.

- Artificial sweeteners/sugar substitutes are substances used to make foods taste sweeter without adding calories.
- Early studies showed that cyclamate (not available in US) in combination with saccharin caused bladder cancer in laboratory animals.
- Studies in rats showed an increase in bladder cancer at high doses of saccharin (Sweet 'N Low®, Sweet Twin®, NectaSweet®), especially in male rats. The mechanism appears not to be relevant to humans.



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The next topic is about artificial sweeteners. Artificial sweeteners are sugar substitutes that are added to foods to make them taste sweeter without adding calories. Early studies, back in the '70s, showed that cyclamate, which isn't currently available in the United States, in combination with saccharin caused bladder cancer in laboratory animals and then subsequent research in rats showed that there was an increase in bladder cancer at high doses of saccharin, especially in male rats.

However, the mechanism appears not to be relevant in humans. The rats would make sodium salts, sodium saccharide, which contributed to the tumor formulation in their bladder and humans, mice, monkeys do not do that, and so taking those compounds did not cause bladder cancer in those other models.

In looking at other types of sweeteners, one study in rats showed more lymphomas and leukemias consuming aspartame, so that's the Equal or NutraSweet at levels equivalent to drinking 8 or more cans of diet soda daily. Then in humans, a population study in retirees did not find any links between the intake of aspartame to lymphoma, leukemia, or brain cancer. There aren't any studies published linking Ace K, or aceulfame potassium, sucralose, Stevia, Truvia to cancer in humans.



Artificial sweeteners cause cancer.

- One study in rats showed more lymphomas and leukemias in rats consuming Aspartame (Equal®, NutraSweet®) at levels equivalent to drinking 8+ cans of diet soda daily (Sofritti 2005).
 - A population study in retirees did not find any links between intake and lymphoma, leukemia, or brain cancer (Lim 2006).
- No evidence exists linking acesulfame potassium (Sunett®, Sweet One®); sucralose (Splenda®); neotame; or stevia/truvia to cancer in humans.



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The take-home message here is again consider your health status. If you're trying to avoid sugary drinks, you may want to consider tapering to some of the diet drinks to kind of be in line with that first message that we were talking through. However, I work with a lot of gentleman and women that have been past smokers and have a lot of habits and I've noticed a high volume of soda consumption, and I'm not saying that that causes cancer but I think consuming that amount each day is displacing some other healthy options for drinks and foods.

It's okay to drink some diet drinks. I'm not demonizing them in any means, but limiting the servings of diet drinks is probably a good idea. One of the things we talk about in our counseling and in our studies is a good, better,



best mentality so it would be good to avoid sugary drinks and it would be even better to drink drinks that are not sweetened with artificial sweetener and then the best is really going for some natural hydration through either water, unsweetened tea, or black coffee.

The last myth that we'll talk about is eating an alkaline diet will prevent cancer. Cancer cells tend to make the environment around them more acidic because they have very rapid metabolic activity. So the acidic state around the tumor is just localized around the tumor but it doesn't necessarily shift the pH balance of the total body. Really, from a physiological perspective it appears as if rather than the acidic environment causing the tumor, it's probably the other way around, that the tumor causes acidic environment.

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Artificial sweeteners cause cancer.



- TAKE HOME MESSAGE:
Consider your health status.
 - If you are trying to avoid sugary drinks, consider tapering to diet drinks.
 - Limit servings of diet drinks.
 - Water, unsweetened tea, and black coffee are best.

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Myth: Eating an alkaline diet will prevent cancer.

- Cancer cells tend to make the environment around them more acidic due to rapid metabolic activity.
- The acidic state around the tumor does not shift total body pH.
- Rather than acidic environments causing tumors; tumors cause acidic environments.

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To talk just a little bit about what this means. When the foods that you choose to eat can actually nudge your blood and body pH, (pH stands for hydrogen potential), but the effect is really very short-term and the changes in the body pH are very, very small. PH is very tightly regulated in the body. One of the truths behind this idea is that eating plant-based foods tend to make the blood and urine more alkaline and we know

this from doing studies in patients that have kidney disease that if we feed them more vegetables and fruit products their urine pH will become more basic, more alkaline.

However, animal foods tend to increase acidity so high protein foods from animal sources, meat-based foods, tend to increase the acidity in the urine. Again, these changes are very small and in the studies that have been conducting in this phase, in fact, one of my former Ph.D students ran a

recent study that just got published. We did change the pH balance in a person's body but it was just a very small nudge and as far as whether that has relevance in cancer there's really not any data to support that. However, there are epidemiological studies suggesting if you eat more plant-based foods, more vegetables and fruits, that in a huge population you do see some reduction of risk of cancer.

Slide 18 features a blue background with white text. At the top, it includes logos for NCI Cancer Center, THE UNIVERSITY OF KANSAS CANCER CENTER, and BEST HOSPITALS. The main title is "Myth: Eating an alkaline diet will prevent cancer." Below this, there is a bulleted list of five points. The BCAN logo is in the bottom right corner.

- Diet can nudge blood and body pH but the effect seems to be pretty short term. Also, these changes are VERY small.
- The body has tight control of blood pH.
- Plant-based diets tend to make the blood and urine more alkaline.
- Animal foods tend to increase acidity.
- Data do not support that an alkaline diet will improve cancer outcomes.

Slide 19 features a blue background with white text. At the top, it includes logos for NCI Cancer Center, THE UNIVERSITY OF KANSAS CANCER CENTER, and BEST HOSPITALS. The main title is "Myth: Eating an alkaline diet will prevent cancer." Below this, there is a yellow square containing a black outline of an envelope. To the right of the envelope is the text "TAKE HOME MESSAGE:" followed by a bullet point. The BCAN logo is in the bottom right corner.

- TAKE HOME MESSAGE:
 - Eating fruit and vegetables is linked with lower risk of all kinds of chronic diseases, including some types of cancer.

In summary, data do not support that an alkaline diet will improve outcomes but the truth is that eating fruits and vegetables are probably so good for you. The take home message on this mess is again eating fruits and vegetables is linked with lower risk of all kinds of chronic diseases including some types of cancer.



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