

But Why: A Podcast for Curious Kids

Why Is Sugar Bad For You?

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[Jane] This is *But Why, A Podcast for Curious Kids*, from Vermont Public Radio. You know, it's actually not just for kids. We like curious adults, too.

And we hear that some of you tune in even if you don't have kids. So thanks.

Our job on this podcast is to celebrate curiosity in all forms and help you get answers to some of the things you've been wondering. Turns out a lot of you have questions about the food you eat, and the food you're supposed to eat, and even the food you're not supposed to eat. So today we're going to talk nutrition:

[Child] Why do you have to eat vegetables?

[Child] How does eating salty food make you thirsty? Why does junk food tastes so good?

[Jane] We think about food all the time: when we're grocery shopping, when we're cooking, when we're eating, and when we get hungry. But how much do you know about the food you're putting in your body? We got in touch with one person who knows a lot about the food we put in our body.

[Wesley] My name is Wesley Delbridge. I'm a registered dietitian/nutritionist, and I'm a national media spokesperson for the Academy of Nutrition and Dietetics.

[Jane] That means he's gotten a lot of education on nutrition and healthy eating and the science behind it. So he can help answer your questions about healthy eating. Let's get the fundamentals down first.

[Sam] Hello, my name is Sam. I'm from Chicago, Illinois. And my question is, why do we do we eat? I'm 4 and $\frac{3}{4}$. Thank you. I like your show.

[Jane] Okay. Why do we eat? Why do we have to eat?

[Wesley] I like to think of our body as like cars and cars need fuel to run. So food is what that good fuel is for our bodies: it has these special powers inside of it that helps us grow. It helps our bones to grow, our eyes to see, our muscles to work. Everything that functions in your body, every movement you make, every breath you take is from that food giving you that energy.

[Child] I'm six years old. I live in Taiwan. And my question is, how does food give you energy?

[Jane] We actually talked a little bit about digestion in a previous episode we did a few months ago. That was an episode that focused on what happens at the end of the digestive process, basically why we poop and fart. So you might be interested in listening into that episode--for many reasons, if you want to know more about that part of digestion. But the whole purpose of eating and going through the digestive process in the first place is to get the energy your body needs to function. Every part of your body needs energy to work: your brain, your heart, your lungs, your feet, your eyes--you get the picture. And we get that energy from food. But you can't get the energy from food just by looking at the food or by putting it in your hand and hoping the energy just absorbs into your skin. You need the enzymes in your saliva and your intestinal tract to break down the food into teeny tiny pieces that your body can use. Your bloodstream moves the energy from the food to all those parts of your body I mentioned so you can do all the things you need to do to get through the day.

Food has a lot of things your body needs: salt and other minerals, vitamins, water--all those things help your body function. The energy comes from the macro nutrients in the food. The biggest parts of the food: Fat, carbohydrates and protein. Carbohydrates give you the energy to move your body, run fast, play hard, and they're available to your body to use pretty quickly after you've eaten. Protein helps build and repair your muscles and tissues. Did you know your hair and your fingernails are mostly made up of protein?

Fat also helps you build the cells in your body. It helps you absorb those vitamins and minerals, and it helps you make hormones. It also protects your organs and helps keep your body warm. Your body sometimes stores energy in the form of fat and uses it later when you might need it. Now you need all of those things protein, carbohydrates and fat, plus the vitamins and minerals, plus the water that's in all that food, to help your body do what it needs to do. The tricky part is knowing what foods to eat, how much of them to eat, and how to make sure you're getting a balanced diet that includes all the different kinds of nutrients you need to be your healthiest self. Plus, you want to enjoy what you eat. You have to do it several times a day; you might as well like what you're putting in your mouth.

[Ralphy] Hi, my name is Ralphy. I'm five years old and I live in California. My question is, why do people eat food so they can grow up?

[Jane] We hear this from adults all the time: You need to eat your dinner because it's going to help you grow up. What does that mean?

[Wesley] Well, in order for your muscles to get bigger, for your bones to get stronger and get bigger as well, and for your whole body to grow, you need good, healthy food, because your body, if it doesn't have that food, doesn't grow. It kind of just stops and doesn't get as healthy as it could be. And the better you eat, the better you'll grow. And you only have a certain time in your life to grow. Once you become an adult, you stop growing, and you stop building good muscles. So we want to make sure that we're eating good as we're kids. And that's why a lot of grown-ups focus on kids is because you guys are growing every single day, and you need that good fuel and that good food to build those muscles, to build those bones, to get your brain going strong, to get your eyes seeing really good, and to help you think better, feel better, sleep better. All those wonderful things come from eating good food.

[Jane] But Wesley, if we really just want junk food, is it really going to make a difference in how we grow, whether we eat enough good food?

[Wesley] Yeah, I never liked to say that there are no foods that you should never eat--junk food, candy, all those types of things, they do have a place in the diet. I call them "sometimes food." But if you only eat junk food or only candy, those foods don't have the nutrients or the vitamins or the good special powers that your body needs to grow. Yeah, they can give you energy, but they can't give you all the good stuff inside to help you see better, to help you think better, to help you do better in school, to help you do better in sports. Anything that you want to do, your body just kind of feels really sluggish and slow. And it's like putting bad fuel in your body. It's still fuel, but it's not good fuel, and it'll give you energy, but you won't grow as strong and as healthy and as smart as you possibly could be if you eat healthy food.

[Jane] So let's ask about vitamins because this is something else that we often hear--that certain foods have good vitamins in them, and we need vitamins. So Zoe and Scarlett both want to know about vitamins.

[Zoe] My name is Zoe. I live in Michigan. I'm four. Why do foods have vitamins?

[Scarlett] My name is Scarlett. I'm nine years old. I live in Portland, Oregon. And my question is, what are vitamins made of?

[Jane] Vitamins are naturally occurring, substances found in our food in small amounts. They're things that we need but that our body can't make or can't make enough of on its own. So even though vitamins are a small part of most foods, they're an essential part of our daily diet. Different vitamins do different things.

[Wesley] For instance, there's vitamin A. Vitamin A specifically goes in, helps your eyes and keeps them healthy and gives you what I tell my son--my son, 6 years old-- X-ray vision powers to help him see really well. Vitamin D that goes to your bones and builds strong bones and helps them grow and stay strong. You might hear Vitamin C that helps your body not to get sick. So these are all very specific special powers within food that go to different parts of your body and help it in different ways.

[Jane] Vitamins are in food. So if you're eating a lot of different kinds of healthy food, you'll get all the vitamins and all the energy you need. But some people also take vitamin gummies or pills to make sure they're getting all of the vitamins they need. And you can talk to your doctor or to the adults in your life about that. You know what has a lot of vitamins? Vegetables. Here are some veggie questions:

[Michael] Hi, my name is Michael. I live in Cartier, Manitoba. I'm 4 years old. Why do you have to eat vegetables?

[Jane] And here's three-year-old Sean.

[Sean] Why do we have to eat vegetables all the time?

[Jane] Why do we have to eat vegetables?

[Wesley] Well, vegetables are super foods, meaning that they have so many great things inside of them that our body needs. Vegetables grow naturally. They have all of those vitamins that I spoke about. They still give you energy. And they also have what's called fiber. Fiber, if you want to think about fiber, is kind of like a brush inside of your body that keeps it clean and keeps it moving well. And so vegetables have all of these amazing superpowers that we don't even know all of what they do right now. And they're the best super foods that you can eat out of anything That's why we tell you to eat a lot of those superfoods--not because we want to make you eat things that you don't like, but because we're trying to give you the best food possible.

[Jane] Well, I love this question from Scarlet:

[Scarlett] I'm nine years old, and I'm from Portland, Oregon. Why, if you put vegetables in, like, carrot cake, there are carrots in there, or there are tomatoes in ketchup and stuff. Why aren't they as healthy as the real thing?

[Jane] Why isn't it just as good to have those foods since you're getting the vegetables?

[Wesley] That's a great question. People can take vegetables and make them into things that are unhealthy. You can take a potato and fry it in oil and add a lot of fat to it and a lot of salt to it. And even though it's a potato, you've added other things into it that might not be as healthy. So, for instance, on your carrot cake, there is only a little bit of carrot in that cake. What it mostly is white flour and sugar and fat. And so that's all the bad stuff. Plus, when you take vegetables and process them way down like you do with ketchup-- ketchup has a lot of sugar in it. The more you process a fruit or vegetable, the more you're taking out those special vitamins and minerals and special things inside of it. So every time you break it down, you're losing that. Even though it might have it, it doesn't mean that it's the best as it is if you ate a tomato just plain or in a salad, or carrots cut up with hummus.

[Sophie] My name is Sophie. I'm five years old.

[Katie] My name is Katie... And my question is, why do we have to eat healthy food?

[Sophie] Why is other food some different from others?

[Jane] So Sophie and Katie are asking about healthy food. But what I appreciate about their questions are that they're kind of getting at this question of, well, what *is* healthy food, and why are some foods considered healthy and some are considered not healthy? And if it's all food, how do we know what's what? Can you talk a little bit about how we can understand the difference and know whether we're eating healthy food or not?

[Wesley] Really deep questions. I could talk for an hour about that. Sophie and Katie, good for you. What healthy food means is that it's food that is giving us energy; it's giving us those vitamins and minerals that we need. It's giving us the fiber that we need. It's got an appropriate amount of what we call calories, which is the amount of energy inside of it. And that's how we judge food and know if it's healthy or not.

[Wesley] If it has a lot of what you might hear is fat or a lot of sugar or not a lot of nutrients, things that have been processed, things that don't have a lot of the good stuff inside, that's what we call unhealthy food. It doesn't mean that you can't have it. Like I said, it could be "sometimes food," but healthy food has all of the things that you need to function the best way that you possibly can and grow up to be healthy, the best that you possibly can. And so the best way to do that is to look at a nutrition label and to look at how many calories are in the "serving size," how much fat is in it. And you want to have things that are low in fat and low in sugar and with a good amount of calories, high in vitamins and minerals, high in fiber, and all of those good

special powers, and a good balance of all of those foods. And then you can also have some of those “sometimes foods” as well.

[Jane] Let's tackle Jude's question here.

[Jude] I live in Albuquerque, New Mexico. I'm eight years old. And my question is, why does junk food taste so good?

[Wesley] That's a great question. Junk food tastes so good because it has fat and salt and sugar inside of it, and our body, our tongues and our brains really process those a lot differently and can get very used to having them. And they like it. It tastes really good. It adds a different flavor than you find in natural foods. There are a lot of additives in it--things that are added to it that aren't natural--and so it makes it taste really good. And you crave it, but it's not good for you to have all the time. So even though it might taste good, it doesn't mean that it has good stuff in it.

[Jane] Let's take a quick snack break. Are you going to have fruits and vegetables? Maybe a banana with peanut butter, some wholegrain pretzels with hummus? Coming up, we're going to talk about why our bodies crave sugar so much, and why eating too much salt makes you feel thirsty.

[Jane] This is *But Why?* And today we're learning more about something very important: how the food we eat can help us feel great or not so great, depending on what we're eating; and why the adults in our lives are always harping on us to eat fruits and vegetables or have less sugar. And let's talk about sugar, because this is a big one. Here are some questions, starting with Chloe, who's seven and lives in Atlanta, Georgia.

[Chloe] My question is, why do people like sweet things more than fruits or vegetables?

[Alejandra] Hi, my name is Alejandra. I am seven years old, and I'm from Houston, Texas. My question is, why do some things taste so sweet?

[Keonna] My name is Keonna. I'm four years old, and I live in Los Angeles, California. And my question is, how is sugar sweet?

[Jane] You might have noticed that your body and your brain seem to tell you pretty frequently that something sweet would taste really good right now. And there's a good reason for that. Remember when we talked about energy and carbohydrates earlier? Well, carbohydrates break down into glucose in your body. Glucose is a form of sugar that your body can use immediately to help you run fast--like if you were a caveman or a cavewoman way back in the day, and you needed to run away from a predator, or if you needed to walk

long distances to find water or shelter. Your body needs sugar and it can use it for fast energy. And finding sugar used to be harder than just picking up a cookie or even a grape. So even though sugar is everywhere now for so many of us, our brains still perhaps thinks that there's a shortage and it tells us to want it so that we'll go and find it. But why do certain foods taste sweet? Well, basically, our taste buds on our tongue have certain receptors that can immediately detect the chemical compound in sugars, and your taste buds send a signal to your brain, which you interpret as a sweet, and your brain then releases other chemicals that make you feel happy. Pretty amazing, right?

[Wesley] So the more sweet things you eat, the more you'll crave sweet things. The less that you eat, the less you'll want sweet things. And when you do eat something sweet, it'll taste really sweet. And you only need to eat a little bit of it just to get enough of that sweet flavor. But if you're having candy and sugar and a lot of high sugar items all the time, your body is going to crave that more and more and more and more.

[Elizabeth] Hello, my name is Elizabeth, and I am six years old. I am from Gray Eagle, California.

[Winnie] My name is Winnie, and I'm six years old. I live in Indianapolis.

[Leo] My name is Leo. I am eight years old, and I live in New York City.

[Sam] My name is Sam. I am nine years old. I am from Ottawa, Ontario, Canada.

[Kai] My name is Kai. I am six years old. I was born in Lima, Peru, and I live in Serbia, Belgrade now.

[Isadora] My name is Isadora. My age is six. And I am from Toronto, Canada. My question is, why does sugar taste so good, but is bad for you?

[Joelle] Hi, my name is Joelle (?). I'm from Vancouver, Canada, and my question is, why does my mom not want me to eat sugar?

[Jane] So we've understood now why we want sugar, and that it does give you energy but not much else. But a lot of our young listeners want to know why specifically is it bad for you? I mean, why would it be bad to have something that gives you energy even if it doesn't give you anything else?

[Wesley] It's because if you're only eating sugar--let's say, sugar-sweetened beverages like soda or candy--all that has is sugar. When you eat that, your body absorbs it very quickly, and your blood sugar jumps up, and you get this

shot of energy, and you feel good, and maybe you're a little hyper. But then your body gets rid of that energy very quickly, and then you feel weak--you get what we call "low blood sugar." And that's where you feel really tired and really sluggish, and you don't want to do anything, and you can't concentrate. So even though you're getting that energy, there's nothing else with it, so your body absorbs it, you feel good, and then all of a sudden, you feel really bad. That's why we need to have a healthy, balanced diet with, you know, those "sometimes foods." But if you only get high sugar items, you're not going to feel good at all. You're not going to get the nutrients that you need. You're not going to be able to concentrate in school. You're not going to be able to do well in sports or play on the playground. You're not going to feel good even though the things that you're eating taste good.

[Jane] I think we've beat up on sugar for long enough. Let's tackle something else. Brendan is wondering about salt.

[Brendan] My name is Brendan. I live in Charlottesville, Virginia. I'm eight years old. And my question is, how good is salty food make you be thirsty?

[Wesley] Salt is also naturally occurring. You can get it from dry sea beds. You can get it from the ground. It's called sodium, and it is something that our body needs for our muscles to work right. But too much of it can make your body absorb water. So salt absorbs water. The more salt you eat, the more water it's going to pull from your body. It's like a sponge, and it soaks up water and it makes us feel thirsty because we're dehydrated. Too much salt can make us feel kind of gross and make us feel really thirsty. And over time, salt can affect your blood circulation and your heart, if you continue to eat large amounts of it. So, again, it's a good food, our body needs it, it's naturally occurring, but just like anything, too much of it is harmful.

[Anya] Hello, everybody. My name is Anya. I live in Kuwait, and I'm nine years old. My question is, why is breakfast so important?

[Jane] I've heard this a lot, too, that you should definitely always eat your breakfast. Why do we focus on breakfast so much?

[Wesley] Overnight, your body's sleeping, and it's rebuilding its muscles, and it's growing, and it's doing all these wonderful things while you sleep. (And that's why sleep is so important.) When you wake up, though, your body has gone, you know, eight hours without eating, usually even more, if you've eaten an early dinner, so your blood sugar is really low, you might be a little dehydrated, and in order to start the day right, we want a balanced breakfast.

[Jane] So what is a balanced breakfast? Well, a lot of breakfast foods are high in sugar and low in protein. So they give you fast energy, but won't keep

you full of energy until lunchtime. So you want to make sure you have something that will power you through school or sports or a hike with your family.

[Wesley] So, you know, when we talk about protein, you can have low-fat milk, low-fat yogurt, eggs, peanut butter or any sort of nut butter. You can have sausage or turkey--turkey bacon is a great idea. When we talk about carbohydrates, you want to have whole grains, so you can have high-fiber cereal or you can have, you know, some high-fiber muffins that you've made at home. Fat is easy, you know, because you can get fat in your dairy, and fat is in those nut butters as well. And then you want to have fiber, so some fresh fruit to go along with that. You can make it the night before or write down every breakfast that you're going to eat that week, on Sunday, so that you're very prepared at the beginning of each day to eat a good breakfast.

[Jane] So from breakfast to the end of the night...

[Anna] My name is Anna. I'm four years old. I live in Minnesota, and my question is, why do children get hungry at night?

[Jane] Well, Anna asks, why do children get hungry at night?

[Wesley] A lot of times you get hungry at night because you haven't eaten enough food or enough healthy food throughout the day. Maybe you had a quick breakfast and you're running out the door and you didn't plan well. And then lunch comes at school--and I know this school lunch can be tough because you don't get a lot of time to eat. And then you're playing throughout the day. Maybe you come home and have a snack. Dinner comes and either, you know, you're eating junk food, or your mom or dad prepared something really healthy and maybe you didn't like it and didn't eat it, so by nighttime, your body is trying to make up for all those calories and all that energy you missed throughout the day. So it's very important to eat enough calories and get enough nutrients during the day. And if you do that, when nighttime comes, you should have plenty of energy so that you don't get hungry at night.

[Jane] So our last questions are from Lyndon and Anna, and they're both asking about fast food.

[Lyndon] Why is fast food so popular?

[Anna] Why is fast food so unhealthy?

[Jane] And, you know, we spend a lot of time talking about all of the good choices that people can make and what healthy eating is and why sugary

foods and salty foods can be problematic. If adults know this, why are there so many places where we can buy food cheaply and quickly that's so bad for us?

[Wesley] Well, I think there are two reasons, and you already hit on the first ones--and that is, "cheaply and quickly." We are so busy nowadays between school and extracurricular activities and homework and sports and, you know, all these things, that food kind of gets lost. And if you want to go to the store and buy fruits and vegetables and come home and chop them and process them and cook them and create recipes, that takes time. And I think that fast food is so popular because you can literally feed your entire family for \$15, and get that food within five minutes. The second thing is that it tastes really good. The reason it does is because it has lots of fat, has lots of sugar, and has lots of salt in it, and our body likes all of those things. So we get used to it. We get that flavor profile. You know, there's certain restaurants that we really love because their food just gives us that good feeling. And it makes our brains react well, but it doesn't have those nutrients--that food has been really, really processed down. There's not a lot of those special powers and vitamins and minerals in it that can give you energy, but it's that bad energy that makes you feel sluggish and gross. And it has those things that make it taste good, but won't make you feel good.

[Jane] Wesley Delbridge suggests that if you're interested in getting more involved in what you eat, you should ask the adults in your life if you can help plan the menus, maybe even go grocery shopping to learn about what kinds of vegetables are available, and the difference between one kind of bread and another. And he suggests that if you really want some junk food or something you know will taste good but won't give you lots of good, healthy energy, make that a "sometimes food." And when you get your "sometimes food," whether it's a piece of chocolate or a potato chip, really take the time to enjoy it. If you eat it slowly and savor each bite, you'll get all the good feelings you're hoping for, and you might not eat as much of it as if you're just popping it into your mouth one bite after another. Wesley had one other thing he wanted to say to you in this episode:

[Wesley] To each kid who submitted a question, I really appreciate it. I am so glad that you're caring about your food, that you're caring about your bodies, and continue to ask those questions. And get involved with your parents and motivate them to be as healthy as you want to be, and to know that food makes you feel good. And so if you want to feel good, eat good food.

[Jane] Wesley Delbridge is a spokesperson for the Academy of Nutrition and Dietetics. Thanks, Wesley. And, yes, thanks to all of you for asking such good questions and for being interested in everything around you. Every time we

make an episode, Melody and I learn so much from your questions and from the guests who come on to answer them. If you have a question, send it to us. Have an adult record you using one of those built-in memo functions that come on a smartphone. Get right up close to the phone, and try to make sure you're not riding in the car or in a really noisy place unless it has something to do with your question.

We actually love it when you record a question in the sound environment, you're asking about like a question about crickets when you're out in a field full of them. But generally speaking, keep the background quiet and tell us who you are, where you live and how old you are and then what you're wondering about.

We can't get to all of your questions on the show, but we do listen to each and every one and we love them all. You are all so smart and so interesting. But why is produced by Melody Bodette and me Jane Lindholm at Vermont Public Radio. Our theme music is by Luke Reynolds. We'll be back in two weeks with an all new episode. Until then, you know the drill. Stay curious.