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Hello, everybody. My name is Christy Goff, I'm a registered dietician and yoga instructor with Pacific Medical Center. And today we're going to talk about nutrition for the immune system. So just a little bit of background. I work for a program called the Living Well alliance that does workplace wellness programs.

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I'm also a clinical dietitian at PAC Med, and I visit the Lynwood, Northgate, Beacon Hill and Federal Way Clinics. So today I wanted to go over the basics of our immune system, it's a complex system, but we'll go through just like the really basic part of that.

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Well, then explore some ways to protect and support that immune system, focusing mainly on nutrition. So hopefully at the end of class, you'll be able to name two practices that you can implement today to help your immune system and your health.

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All right, let's dove in. Our immune system is generally does a remarkable job of defending you against illnesses or any type of bacteria that is not supposed to be in the body, but sometimes it does fail, and that's when germ successfully invades the body and makes you sick.

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So a lot of our symptoms are from our own immune response. It is possible to make your body stronger against disease with things like nutrition, exercise, adequate sleep, low stress, all those things that make us in general, a lot healthier.

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So let's touch on a few general parts of the immune system. Today, the immune system is made up of two main components the innate or general immune system and the adaptive or the specialized immune system. These two systems work really closely together and take on different tasks.

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So first, the innate immune system that general general immune system. This is the body's first line of defense against germs entering the body. It responds in the same way to all different germs and viruses or foreign substances in general, which is why it's sometimes referred to as the nonspecific immune system.

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But the good thing is that attacks are really quick. So, for instance, it make sure it's bacteria that have entered through the skin through a small wound are detected and destroyed within just a few hours. But the innate immune system has only limited power to stop germs from spreading.

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So once they get into the cell, especially with a virus, for example, it's not very good at getting rid of those things that have successfully invaded. So to recap, the innate immune system consists of protection offered by the skin and the mucosal membranes.

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So this is the external portion that you can see on your screen. About 70% of the immune system lies in our gut microflora, so we're going to talk about that in one of our key things that we can do nutritionally to support the bacteria in our body.

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And then finally, the innate immune system provides protection through different proteins. So there's two main ones on your list here. The phagocytes and the natural killer cells are PN Casey, and these are very general, so they identify and help exterminate anything that isn't supposed to be there.

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Things like the natural killer cells help to create attacks on things that aren't supposed to be there and get rid of them. So this is that first line of defense. The second line of defense is called our adaptive immune system, and this usually takes over once the initiation of the innate immune system starts.

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So usually around day four to six, depending on your own body's response, it targets the type of germ that's causing the infection. So it's really specific. There's different cells that deal with different types of bacteria and different types of viruses, and they help identify it.

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This is why it's a slower response, and we do get a lot more accuracy as a result. However, it also takes advantage of being able to remember germs so that next time you see that germ, the body will react in a much faster way.

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So instead of four days, it might be one or two days. That's the benefit of having vaccines because again, your body's remembering those response systems, and it takes a lot less time to kind of call in the troops.

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So, for example, your adaptive immune system is made up of T lymphocytes in the tissues between the body's cells B lymphocytes that are also found in the tissue and then antibodies that are stored in the blood and bodily fluids.

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And these again, are much more specific, and they do a better job at exterminating what is needed to be exterminated. This is another this diagram that just shows the difference between the adaptive and the innate immune system. So it's really interesting because when we target nutrition reasons for boosting or supporting our immune system, we find that they

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support some of these tasks that your body's doing in both the innate and the adaptive. So what should we do to stay healthy and we'll spend the majority of the rest of the time talking about nutrition while mentioning a few other things.

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So an ounce of prevention does do a lot. We want to wash our hands for at least 20 seconds. I know we've been hearing

that all year long, but I still really accurate way to get rid of anything that isn't supposed to be in the body, especially if we have really good skin health and there's not a

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lot of cracks and wounds that things could get into. We want to socially distance masking up, especially if we're not vaccinated. Maybe you are getting vaccinated for the flu this year or COVID, and that's really important. Vaccines again target that adaptive immune system and it's much quicker to respond and people tend to not have any symptoms, if

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any, when they come in contact with that virus. Eating well, we'll talk about that a lot, staying active, getting adequate sleep and trying to minimize stress are all extremely important for the health of your immune system. So let's dove into the food portion.

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I'm kind of curious if you've heard anything specific around food, so maybe think of one or two things you've heard in the media that are that are related to nutrition and supporting the body. So we know that nutrition supports our major defenses, that innate and adaptive immune response through vitamins, minerals, antioxidants and phytochemicals.

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So let's dove into some of those tips for our immune system. The first one is our fruits and vegetables. And this probably seems obvious because again, they're contain fruit. They contain vitamins and minerals and antioxidants that I just mentioned.

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Fresh or frozen is a great way to get fruits and vegetables into the body. We know that less processed plant foods have more nutrients in them. And we also know that it can help repair some of the damage that our immune system does do on a daily basis by just trying to survey and protect one of the

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key components to getting more fruits and vegetables is having adequate fiber, so fiber is going to support the health of our gut and our digestion. So again, 70% of our innate immune system is found in the gut. So if we can keep those guys healthy by feeding them these fresh fruits and vegetables or frozen, that's going to

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go a long way to support your health and have those mechanisms respond a lot faster. There's a couple vitamins in particular that I wanted to point out that are often found in our fresh fruits and vegetables. Vitamins A, C and D and D is a kind of one that might be in milk if it's fortified some seafood

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. But a lot of times I say, just supplement with your vitamin D. OK, so first vitamin A, it also has a precursor called beta carotene that's found in the body and has been shown to protect the lung function and act as a strong defender against diseases.

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It's also really important for skin health. So in general, we want a lot of vitamin A in order to have cell differentiation

and have adequate skin turnover. Vitamin C also supports the skin and wound healing. But in addition, it also helps with our different cells of the innate immune system, so those parasitic cells, such as neutrophils.

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It's also needed for apoptosis, so signaling cell death. And it's again helps to repair your immune function and provide more susceptibility to finding those guys that shouldn't be in the body. Now we'll talk about exactly how much of these things we need, but those are just some key points around it.

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They're also finding a correlation lately of low vitamin D levels in a body and more symptoms of COVID 19 specifically. So this is the one that seems to be more and more in the media for boosting our immune health.

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So getting an adequate vitamin D is about 1000 to 2000. I use every day through a supplement and then substituting some foods that have vitamin D again, like fortified milk products, some seafood. Occasionally, there are some with mushrooms, but probably not enough to get those amounts that you need every day.

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There's also some minerals that are important for your immune health. We will go over these a little bit more in another category, but we need iron, copper, zinc and selenium. And I'll talk about zinc when we get to the supplemental piece.

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In addition, be fruits and vegetables, a lot of them contain a sulfur compound that's also found in egg yolks, onions, cruciferous vegetables like broccoli and kale has been shown to enhance the activity of defense cells, creating that stronger immune response and helping the body detox through the liver naturally.

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So get your cruciferous vegetables in again. That's like broccoli and cabbage kale. Some of those dark, leafy green vegetables are always a good choice. The second on our list is seafood, and I kind of alluded to this for vitamin D, but seafood also contains omega three fatty acids.

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This fatty acid supports lowering systemic inflammation in the body and the more inflammation we have on the body, just think of it as a distraction for your immune system. Your immune system is working hard to repair and restore, and foods that increase the inflammation just kind of distract the immune system from doing its job of surveying the

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scene and seeing if there's anything foreign because it's worried about your own body. So omega threes tend to dampen that inflammation in general in the body. We also know that seafood is the best source of omega threes and the vitamin D, so you kind of get two good things in one.

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And when we think about how much seafood, it's about twice a week to get adequate omega three levels. There's also the ability to supplement if you hate seafood or you avoid seafood. Most of the the like smaller fish have no signs of mercury or our safety on a daily basis.

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But some people prefer supplementation where they know where that fish oil is coming from. Again, fruits and vegetables play a role in inflammation as well, but again, adequate sources of those omega threes can go a long way when you're thinking about supporting that immune system.

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All right, so then the next thing is some of the limits, so we had some of the things to add to our diet. Now look, let's look at stuff to limit and that is on the screen as sugar, alcohol and smoking.

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These all distract the body from the immune system, doing the job it's supposed to do. So, for example, sugar will increase inflammation as well as alcohol and smoking. Another thing to distract the body. Sugar in general is a stimulant as well.

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So this one can also just cause lack of sleep or same with alcohol and smoking, they can cause disturbances in sleep, which has been really again important for your immune health. Alcohol and smoking are definitely the the worst two options of the three.

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But sugar can be something that we work on on a daily basis to try to get to the natural six to nine teaspoons or less a day of added sugar. So I have some tips around curbing sugar cravings.

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A lot of times I'll tell people to have natural sugars in their diet. So fruits some vegetables. Ways to get these in as an after dinner treat can be really nice. So having your fresh strawberries with some low fat whipped cream on top, that could be a nice way to have a dessert that's mostly that natural sugars

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. Having adequate protein at each meal helps to curb sugar cravings as well. So we find that people that eat of high carbohydrate breakfast or a high sugary breakfast tend to have more cravings the rest of the day. So you kind of put that sugar tolerance up there at the beginning of the day and your body's kind of

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craving that for energy as you kind of go through those crashes and rises of energy with the amount of sugar you might be eating. So having some adequate protein, it doesn't have to be a lot of it. Around ten to 20 grams per meal is adequate.

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So definitely getting in some protein with those carbohydrates helps sugar cravings. There's some good research that even bitter foods can help curb sugar cravings. So things like dark, leafy green vegetables, actual bitters that you might get at the supermarket for an alcoholic beverage that you can put into your your drinks throughout the day.

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So getting in those bitter foods can also curb that kind of intense craving for sugar. We often get, although there's a lot of other things to curb sugar cravings, those are just two or three that I wanted to mention.

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And then with this, it's maybe not an all or nothing, it's kind of just bringing awareness to how much of these three things that you're doing. Smoking we try to want to get, we want to get rid of it as much as possible for the health of our immune system.

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But alcohol and sugar have kind of maybe some wiggle room in there. So knowing that alcohol recommendations are one drink a day for women and two drinks a day or less per men for men and then sugar is that six to nine table teaspoons of sugar, or about 24 to 36 grams?

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All right, so lastly, we have our fermented foods, these are canned foods that contain live bacteria called probiotics. So probiotics are found in some common foods like yogurt, kefir, kombucha. You might have heard of these in the super supermarket.

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Also, kimchi and sauerkraut have some live probiotics in them. They're mostly in fermented foods, and they provide again a good source of nourishment for the gut. We generally go through. We naturally have probiotics in the body, and the nice balance and diversity is really key.

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So getting different types of probiotics is really important for your immune health. That's why supplements can be a good option, especially if you're having any digestive disorders. You can talk to your registered dietitian or doctor about those, but supplements.

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Typically, we want more diverse than what they're offering as far as strands go. So we don't know exactly what strands protect your immune system, but we know that a lot of different ones can be supportive of that. So diversity is key, trying to get at least one source of probiotic foods a day, if possible, and again, that

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could be spread through many different food items. I threw in one more slide about herbs and spices because they're not only tasty, but they really ramp up your immune system even in small doses. So things like ginger, garlic, onions, oregano, rosemary and thyme have been shown to be really beneficial for your immune system.

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So ginger root, for example, is a warming anti-inflammatory spice. It also helps with nausea. So if you have an illness that causes some nausea, this could be a really good treatment. We want to get fresh ginger as much as possible as opposed to like ginger ale that's very processed and more artificial so that it's actually doing the

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job it's supposed to do. So you can do some thin slices of ginger root boiled in water and let that sit for about five minutes and then maybe add some lemon at the last minute. It's a great little after dinner drink, as well as a preventative for any immune system health.

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Garlic, for example, contains an active molecule called allicin, which helps fight off infections and bacteria. It also contains that sulfur compound we talked about that's important for creating that stronger immune response. Onions also have a similar compound in it, so you can get garlic and onion and you can cook them.

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So don't you don't always have to do them raw like we maybe initially thought, but trying to get a little bit more of those if they do well in your body, but especially during the winter season, it's a really great.

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And then a couple of things around thyme, rosemary and oregano. They've done studies in labs where they have some effects of antibacterial or even antiviral properties. So time is specifically targeting antiviral properties, and it's been seen to help dry out our mucous membranes if we're having a lot of again symptoms of our immune system.

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It's been shown to also help upper respiratory infections, which might be more prevalent now that we have a lot of these COVID cases. So think of two things that you could implement into your meals that we just talked about, we talked about fresh fruits and vegetables, seafood, probiotics, herbs and spices.

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Where can you make a little bit of impact in the current meals that you're doing? So these are just some inspiration for you. This is a miso soup with tofu. Miso paste actually has some live probiotics in it.

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There's salmon over on the left. Then on the bottom, you have your condiments that have some probiotics in it. So maybe some yogurt and berries, some sauerkraut. And then this is a Mizo dressing that's poured over those cruciferous vegetables, which are so supportive of your immune system.

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All right, lastly, I wanted to just jump into a couple of supplements and herbs, so supplements are tricky because they're not all regulated the same. They're under the FDA and they are not as regulated as our food supply.

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So there is a couple labels that you can look for on your supplement that make sure it's regulated by a third party, meaning that someone else that's not associated with that company has come in and proven that it's effective, safe.

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And what you're actually paying for. So these five labels are on multiple supplements that have, again, this third party testing that can really be supportive of just making sure the supplement is a good quality and it's actually has in it what it says it does.

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So you can also go to this website if you're concerned about any drug nutrient interactions. I always caution people to first look at this before going out and buying certain, especially herbs, because there is some kind of interaction that can lessen your medication or even increase your medication.

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OK, so a couple of the supplements I'll point out today are vitamin C. We know that again, this is really important for our immune health, but we want small frequent doses to best to best be a preventative and to work as symptom reduction for specifically respiratory illnesses so that small frequent doses about 500 mg every few hours

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. Once you feel some symptoms on a daily basis, I usually point people towards foods. So look at all those beautiful foods on your screen that have rich vitamin C in it. So fruits and vegetables being the number one for vitamin C, but you can get a ton in Kiwis and oranges, some lemon or lemon zest, red peppers

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, pears, even bananas and parsley. There's some dates in the back there. Then garlic also has the vitamin C and again, hot peppers and nuts as well. Vitamin D, I already talked a little bit about this, but it's important to get your vitamin D levels checked if you can at your doctor every year.

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This is a great one to advocate for because we know that low levels will enhance or decrease the ability for your immune system to adapt to what's happening. So again, we found that a deficiency in vitamin D intensifies specifically respiratory infections, which is why they're finding such a correlation between COVID 19 and low vitamin D stores.

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So again, supplementing with one 1000 to 2000 I use every day is important. And if you wear a lot of sunscreen, which I recommend or hats and long sleeves during the summertime to avoid sun damage, I would recommend still supplementing throughout the spring and summer.

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Zinc is another one that you can take as soon as you feel symptoms of sickness. So it's been shown to activate the immune response if taken within 24 hours of symptoms. It seems to help reduce the duration of your sickness as well as decrease symptoms.

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So that's really great. There's a lot of different versions of zinc that you can do, whether it's a supplement or like a dummy that you can chew. So dose recommendations are again low every few hours. If you are doing like a 11 a day dose, that's upwards of 50 to 60 mg.

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I would just caution you not to do that very long because it can decrease the absorption of copper long term. So we want to just minimize it and just use it kind of when you are sick. Other food sources that have zinc are mostly animal products and then some nuts and seeds like you see on your screen



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. So I always again point people to the food to get your zinc. And then when you're feeling sick, maybe reach out for those supplements. Elderberry is a really cool plant, and it has these berries that contain an active component called Sam Lucas.

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So Sam Lucas has been used in ancient medicine for its immune modulating and antioxidant antioxidant properties. It's been tested in 30 or 40 or, sorry, 13 different strands of influenza virus and tested positive for killing these strands of the virus, so it can be a nice viral treatment.

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It's also been shown to improve symptoms and decrease duration. And it's safe for all ages, so even kids could be utilizing these berries. You can get the berries and make your own sirup with it, or you can usually buy it at a local supplement store or grocery store.

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That's maybe a little more natural. So the dosing instructions are usually for when you're feeling sick. Some people can take it as prevention and it tastes really good, so it's something that some people will do throughout the winter just to keep their their stores up, so to speak.

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All right, so I know I breezed through that, but I wanted to just give you all the information and then my emails at the end, if you have any additional questions. The last two, I just want to have to show you what the recommendations for sleep and then stress.

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We know that the quality and adequate amounts of sleep, it really helps to fight off any infection. A lot of our immune system works during the night, so we need that sleep in order to be really productive in both that innate and adaptive immune system.

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Stress will also impair the immune system, distract the body from incoming bacteria or viruses, and increase the auto immune response in the body. So again, the more stress we are, the less likely we can identify and get rid of these bacteria and viruses before we get symptoms of that kind of illness.

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So remember to take action, and if you have one word that would describe what you learned today, you can just think of that in your head usually. Have you put it in a chat bar or something? But take what is one big takeaway that you got today?

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Was it to wash your hands? Maybe you need that reminder. It's important to do that for at least 20 seconds. Socially distance masking up getting vaccinated if you if you wish eating while staying active, sleeping at least seven hours a night, if possible, and managing stress.

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So all of these are so important as we enter the summer and the next winter months. Again, thank you so much for having me today. If you have any additional questions, you can email me at Christine Ji at Packman dot org.

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I'm happy to answer any of your questions and I hope to see you soon again. I work in the nutrition department at Med as a clinical dietitian, so I could see you for anything that your insurance would cover, essentially.

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Have a great day.