EXERCISE AND ONCOLOGY PATIENTS

Featuring:

Anthony Sung, MD

TRANSCRIPT

Maura Bowen: It wasn't long ago. I think maybe it was August 2020, actually, when we aired an Abbott Nutrition Health Institute podcast episode on oncology and nutrition. And it addressed the topic through the lens of COVID-19, focusing on a multidisciplinary team approach to nutrition care for oncology patients. We received a lot of great feedback about that recording, and about some of the other oncology education we produced in 2020. And through it all, we saw one long thread of thought tying together this feedback, and that was a need for more oncology nutrition content as told through a variety of other lenses, not just COVID-19. So, that's what we're here to do today.

In November 2020, we were lucky enough to sit down with a roundtable of experts to continue the discussion on this important topic of oncology and nutrition. And now we're reconvening, so you can hear our experts' insights for yourself through a three-episode podcast series. Today in this first episode, we'll talk about the importance of exercise and nutrition for patients with cancer. In episode two, we'll discuss preoperative and rehabilitation nutrition, and in the third episode, we'll talk about multimodal interventions in cancer patients with and without cachexia.

I'm Maura Bowen, podcasting for Abbott Nutrition Health Institute, and joining me today is Dr. Anthony Sung, Assistant Professor of medicine, at the Division of Hematologic Malignancies and Cellular Therapy, as well as Associate Director of the Duke Microbiome Center, at Duke University School of Medicine, in Durham, North Carolina, here in the United States. And today, Dr. Sung will talk about the benefits of exercise during cancer treatment. He'll review the latest evidence on exercise regimens for people with cancer, and he'll explain the role exercise and nutrition can play to help improve outcomes. And even though we're talking about exercise today, I'm going to avoid talking to Dr. Sung about Duke versus University of Kentucky basketball, which we know is Duke's rivalry for the ages, am I right Dr. Sung?

Dr. Sung: Absolutely.

Maura Bowen: All right. Well, great. So thanks for joining us today.

Dr. Sung: Thank you for the opportunity to be here, and please call me Tony.

Maura Bowen: All right. So, first, I should note that since we're still in the middle of a pandemic, Tony and I are both dialing in from the comfort of our offices rather than recording together in the studio. So today's recording quality may sound a little different from what you're used to hearing. And secondly, Tony, here's our chance to properly introduce you. So would you mind telling us a little bit about yourself, your name, your current role, and your background?

Dr. Sung: Absolutely. I am a hematopoietic stem cell transplant physician, first and foremost. I take care of patients with leukemia, lymphoma, and other blood cancers, who could benefit from transplantation, which is a potentially life-saving curative procedure. I'm also a clinician investigator because I recognized while we have many successful cancer therapies, they're not enough. And we need to improve the quality of our therapies and outcomes for our patients. My research is quite broad, it runs the gamut from mouse studies, where we will test new theories or compounds in our animal models, which we will then translate to phase one, and then eventually phase two, and phase three clinical trials.

I also do a lot of correlative studies where we look at patients who are getting cancer treatments, or who are enrolled in clinical trials, and we look at samples from their blood, or their stool, when we're looking at their microbiome, the bacteria residing in their gut, to see how changes in those biomarkers, or the microbiome, are associated with transplant and other clinical outcomes. Our overall goal through this information is to come up with new therapies that we can use to help modulate human health and improve treatment outcomes.

Maura Bowen: Perfect. Thank you for that background. So I know we've known for years that it's important for people with cancer to really stay as active as they possibly can during treatment. But why is physical activity so important to the process?

Dr. Sung: So we commonly say that the better you are coming into therapy, whether it's transplant, or chemotherapy, or radiation therapy, whatever it is, we are placing a tremendous stress on your body. And so the better you are coming into that therapy, the better you do during the therapy, and the better your outcomes are after therapy. And at least in the field of stem cell transplant, this can be quite dramatic. Survival is significantly improved in patients who come to us with good physical function, good nutrition, compared to those who come to us who are already impaired in those areas.

Maura Bowen: And clearly when you're not feeling well, when your energy is low, or you feel weak, or you feel nauseous, and all the other side effects of this disease, it can be really hard to stay motivated to exercise. Can you speak through some of those challenges?

Dr. Sung: Absolutely. We often see patients who come in, they are newly diagnosed with their cancer, they're motivated to do everything they can to help beat it, including eating well, and exercising, but then chemotherapy, and radiation, and other treatments will cause fatigue. They will cause anorexia, or loss of appetite, nausea as you mentioned. And then it can be very difficult for our patients to maintain that initial good intentions, and very difficult for them to maintain their level of fitness and nutrition. Even patients who come to us very fit, athletes, military veterans, others who are in good shape, may find that the treatment takes quite a toll on their body. But this also speaks to why it's so important to try to maintain that level of fitness, or to improve that level of fitness as much as possible, both prehabilitation, before the intervention, as well as while receiving chemotherapy, or transplant, or other interventions, and then also full recovery.

Dr. Sung: And I think one of the things that we're working on to try to help patients get through these challenging times, not only with medications to help address the nausea, or to help encourage their appetite, but also, I think coaching, and counseling, and the importance of that. Earlier I talked about physical resilience, physical fitness, good nutrition, but I also think that an important part of psychological resilience. That mentality to keep pushing through. Even when you don't have an appetite, to go ahead and drink down that protein shake. Even when you're tired to still get out of bed and walk that lap, or get that exercise in. And I think that's so important to overall outcomes.

Maura Bowen: Can you tell us about some of the clinical evidence that supports the type and duration of exercise needed for cancer patients?

Dr. Sung: Absolutely. There's been a ton of research on the importance of exercise for cancer patients during cancer therapy. It's a little tricky almost because there's so much research. It can be overwhelming, and a lot of it is disease- and content-specific. For example, for breast cancer patients, versus leukemia patients, versus prostate cancer patients. But overall, if I were to summarize the general field, many research studies show that having moderate-intensity exercise, 10 to 45 minutes per day, four to six days per week, can reduce cancer related fatigue, depression, and anxiety. It can improve cardiopulmonary function, and it can ultimately improve cancer outcomes.

In addition to moderate-intensity, or cardiovascular exercise, there's also evidence supporting resistance training. There have been exercise trials of resistance training, or weight training, that have shown exercise will increase lean body mass, muscle protein mass, and improve physical function. Which is especially important because a lot of our cancer patients during the course of chemotherapy, as we talked about earlier, will lose muscle mass, and… deleterious effects on the quality of their muscle, where they have more intramuscular fat and less healthy functioning muscle. And these things can be counteracted by things like resistance exercises, or cardiopulmonary exercises, to improve physical fitness.

Dr. Sung: Overall, the American College of Sports Medicine recommends at least 30 minutes of exercise, three to five times a week. But even if that is not attainable for the reasons we discussed earlier, because of fatigue, or just feeling nauseated, the biggest thing to keep in mind is that any exercise is better than no exercise, and so whatever patients can do, I always encourage them to try.

Maura Bowen: And so your answer makes me think whenever patients, or really, anyone who wants to exercise a little bit more, whenever they ask the question, "What exercise should I be doing?" I know often the answer is, "Well, what do you like to do? That's the thing you're going to stick with." And so based on the clinical evidence you just reviewed, when you're thinking about the right exercise for cancer patients, does anything come to mind that you have particularly noticed to be effective? And on top of that question, where should patients with cancer start? And then also does having a rehab program in the facility help?

Dr. Sung: To address the first part, I absolutely agree. The most important part of exercise is just doing it. We can talk about whether moderate intensity, or high intensity, resistance exercise, weightlifting, impact training, but I think the overall point is just doing something. Going out there and exercising is the most important thing of all. So I will absolutely agree with that statement. Whatever you like doing, we will encourage you to do that. Building on that, we will try to customize our exercise programs to our patients, so that's why I will say, all the information I give is the summary of much of the research that's been done in the field. I would always encourage patients to discuss this with their doctor, their physician, so they can go over what exercise program, or plan, may be right for them given their circumstances.

I will say one of the hottest areas of exercise science these days is something called high-intensity interval training, which you may have heard about in the popular news. It's the idea where you do one minute of very intense exercise, followed by one minute of a low, moderate[ly] intense exercise, and you repeat those intervals, high-intensity, low, moderate intensity 10 times over the course of the half hour workout. We are fans of high-intensity interval training in our program, especially because there's evidence to support that you can see quicker gains with high-intensity interval training, which would help with a lot of patients who may come to us, not necessarily in fit shape, or condition. And it's a way to quickly get them up and running, so to speak.

But at the same time, as you point out, not all these programs are easily accessible, or readily available to everyone. Certainly, I think having exercise programs within cancer centers is a major advantage, and if possible, to seek consultation with your local providers and see what programs are available. But if not, there's an opportunity to go online and find programs. But again, I would suggest talking with your physician to find out what resources are available to you, or if there are specific online resources that they would recommend for you. And then, having the access to a program is one thing, it's not just adherence in getting up and exercising, but also following the quality of the program. One of our research studies or clinical trials

that we have ongoing actually for our high-intensity interval training program, carries the exercise program with a mobile health platform, where we give all our patients an iPhone and an Apple watch. And the reason we do this is so that we can monitor their exercise sessions at home.

Dr. Sung: Traditionally, exercise studies have been done based out of a cancer center, or a facility affiliated with a cancer center requiring patients to come back and forth multiple times a week. Because our patients live over an hour away, most of the time such a distance becomes challenging, and so we've looked at technology to help support home-based interventions and monitoring patients in that setting. Such that when they're exercising at home, we can actually see what their heart rate does during their exercise sessions. And then provide follow-up coaching, and feedback, depending on if we think they're not exercising hard enough, or in some cases they may actually be pushing themselves too hard and it could be hurting themselves that way. So I think having that kind of support is essential.

Maura Bowen: You mentioned high-intensity interval training as a way to see some fairly swift changes. I wanted to ask a follow-up question about that, which really is, how much exercise might a cancer patient need at a minimum to see benefits?

Dr. Sung: I mean, really, at a minimum, I would say, just getting up will help. To flip it on the converse side of things, if you're just lying in bed, doing nothing all day, you can lose up to 1% of your muscle mass every day. You're just lying there, doing nothing. My patients who are in the hospital, those are often my sickest patients. They're in the heat of their transplant, and during the sickest time, they are dealing with nausea, and fatigue, and they don't want to get out of bed. I tell them, "Look, just get up, get out of your room, go in the hall." If you can walk laps in the hall, that's great, but at least get up and get out. And if you get out of your room and you feel dizzy, or you feel nauseated, and you don't want to walk, that's okay, but I want you to at least make that initial effort. Because again, I think just anything that you can do certainly helps.

But in terms of what a goal that patients should shoot for, again, I would go to the American College of Sports Medicine, and say, 30 minutes a day, three to five days a week, would be the goal that I would set for my patients.

Maura Bowen: So keeping that in mind, how does nutrition fit in with exercise to improve mental health and overall outcomes? And are there certain types of food or macronutrients that patients should really focus on to help them build muscle for themselves?

Dr. Sung: That's a great question. I think nutrition and exercise go hand in hand. You look at high-performance athletes, and not only do they have trainers, but they also have dietitians, and nutritionists, as part of their team, because that's essential to help build up strength and muscle mass. And again, our cancer patients, I'm not looking for them to become world-class athletes, or body builders, or athletes, but because

of the stresses of their treatment, they're going to lose muscle mass just from the treatment itself, from what they're going through. And so whatever they can do to counteract that, to build muscle mass, to maintain muscle mass is essential.

Dr. Sung: Many cancer patients have poor nutritional status to begin with. They often come in and begin therapy with low muscle mass, which is predictor for poor quality of life, increased treatment complications, and decreased survival. And improving muscle mass, improving nutrition can improve cancer outcomes, and morbidity, as well as mortality. And so that's why our goals are to, especially targeting patients who are at risk of being underweight, or malnourished, to enhance their nutrition, to improve their muscle mass, to improve their health side by side, with improving their exercise.

At our institution, we actually have a program, a pre- peri-and post-transplant optimization program, which is modeled in part on a comprehensive geriatric assessment, where we evaluate every patient's physical function, as well as their nutritional status. If we have any concerns in those areas, we have them meet with a physical therapist, or we have them meet with a dietitian. Oftentimes, we have them meet with both, so they can help improve their nutrition, improve their function, and again, ultimately improve their cancer outcomes.

For patients who are at risk of being underweight, again, it's hard to give general advice. I think everything should be individualized and personalized to patients, but in general, I would say that they should try to maintain their nutrition. They should try to get adequate protein intake, as well as fruits and vegetables into their diet. For some of my patients who have bad chemotherapy-induced mucositis, which is damage to their mucus membranes, like their mouth, their throat, that makes it difficult to swallow. I'll say, if you can't eat solid foods, go with liquids, go with protein shakes and smoothies, even if it's a matter of just getting ice cream into your body, if you just need the calories, go with that and maybe throw some protein powder in there, but whatever we can to improve that nutrition and again, with the help of our dietitians and nutritionists in the care of these patients.

And I touched there a little bit on types of food or macronutrients that you had asked about, again, I think it depends on the individual, but overall I would say proteins, fruits and vegetables, whole grains are excellent ways to maintain muscle mass, or to prevent muscle loss. And that go hand in hand with exercise in terms of proving overall function and fitness.

Maura Bowen: Thank you. That's such great insight. And clearly, we need muscle to exercise. As we build it, we need to hold on to it. So what are some ways to protect that usable muscle so patients can exercise?

Dr. Sung: There's a lot of things that patients can do to protect that usable muscle. Prehabilitation, I think, is one way. And I know that's the subject of the second podcast, so I'm not going to speak too much about it

here. But I think, as far ahead of things as you can get, in terms of helping patients exercise, eat right, build up those reserves before they begin therapy, especially because it can be so challenging during therapy with those chemotherapy related side effects. But overall, I think, emphasizing that 30 minutes a day, three-to-five times a week, is beneficial. Proteins, fruits and vegetables are beneficial.

Dr. Sung: If you are just feeling too tired, if you're feeling weak, doing whatever you can, pushing yourself as much as you can. And again, I return to what I tell my patients. I hear that you are tired. I hear that you're fatigued. I hear that you don't want to eat anything, but at least try. Get out of your room, get into the hall, take a sip of that protein smoothie. Just start as much as you can, and once you start, you might find that you'll be able to do more. And that's how we build on these things.

Maura Bowen: I know your team is working on a clinical trial. Do you mind telling us a little bit more?

Dr. Sung: One of the things I haven't touched upon, but is dear to my heart and interest, as an Associate Director of the Duke Microbiome Center, is the role of the bacteria in your body, and how those microbes interact to shape human health and disease. We actually share our bodies with trillions of microorganisms: bacteria, viruses, and fungi. And scientists estimate to actually compromise about 3% of our body weight. Someone like me, maybe about five pounds of bacteria living in me. And they help modulate health and disease in a number of ways. Our studies have shown that modulating the microbiome can improve transplant outcomes and our mirroring models. We are now engaged in clinical trials of these strategies to see if they work in people, but also in terms of clinical trials and COVID-19, which is a very important topic at the moment, there's data to suggest that the microbiome, the bacteria in your body, can help protect you against COVID-19. Certain probiotics may be able to protect against respiratory viral infections, including COVID-19.

So we actually have a trial of probiotics to eliminate COVID-19 transmission, and exposed household contacts, or protect EHC. The study is for patients who live with someone who's been diagnosed with COVID-19. And if you find out that you are in this situation, if someone's been diagnosed with COVID-19 in the last 48 hours, we would encourage you to reach out to us. We have a website, sites.duke.edu/protectehc. That's S-I-T-E-S.duke, D-U-K-E.edu/protectehc, one word there. And you may be eligible to enroll in our study, where we will randomize you to receive probiotics, or just a common food additive to see if that can help improve the microbiome, the bacteria in your gut, and help protect you against COVID-19.

Maura Bowen: It sounds like a fascinating trial, definitely important work. And I wanted to thank you for using this podcast to build awareness for that. And I also really want to thank you for your time today, because oncology and nutrition is such an important topic, and we're really grateful you were able to share your insights with us today.

Dr. Sung: Thank you very much.

Maura Bowen: Absolutely. For our listeners. I mentioned this for a moment in the introduction, but in case you'd like a quick reminder, this recording is just one in a series of three podcast episodes spinning off of our recent nutrition and oncology round table. Next, we'll catch up with Dr. Chelsea McGillis, who will discuss pre-operative and rehabilitation nutrition. And then we'll close out the series with Dr. Martin Chasen, who will talk to us about multimodal interventions in cancer patients with, and without cachexia. You can find these recordings on ANHI.org, by clicking Resources, at the top of the page, and then Podcasts and Videos. And we've also created a knowledge hub that showcases all of our oncology content, so you can find that by clicking Resources, and Knowledge Hub. And with all of that said, thanks so much for listening. We hope this content was helpful and that you can use it to help your patients throughout their cancer journey. Thanks everyone. Stay healthy and safe.