Can Do MS Podcast Transcript
Gut Microbiome and MS
Episode 76

[music]

Dr. Rosalind Kalb (Roz Kalb): Hello, and welcome to the Can Do MS Podcast. This is episode number 76 and I'm your host, Dr. Rosalind Kalb. Today, we're honored to welcome Dr. Ilana Katz Sand, an MS specialist and neurologist, whose research interests range from the mechanisms of neuronal degeneration in progressive MS to diet in MS, the role of the gut microbiome and autoimmune diseases and Neuromyelitis Optica Spectrum Disorder. I'm excited to have this opportunity to talk with Ilana about the important role of the gut microbiome.

[music]

Dr. Rosalind Kalb (Roz Kalb): Hello, Dr. Katz Sand. I'm excited to have you here for a conversation. I've been watching your work for some time now, and I feel honored to have this conversation for the benefit of our Can Do audience. If you don't mind, I'll continue on a first name basis.

Dr. Ilana Katz Sand: Of course, and thank you so much for having me here today. I'm excited to be here.

Roz: Great. So, the gut microbiome has piqued the interest and curiosity of many researchers and people living with chronic illnesses like MS. Could you just start by explaining what the gut biome is and how it interacts with the rest of the body?

Ilana: Sure. So, the gut microbiome is really the collection of commensal bacteria that inhabit the gut. So, it's kind of weird to think about it, but we have trillions of bacteria that are living with us all the time. It's not [(2:00)] something like- we like to think about on a day to day basis, but they're there and they're doing a lot of different stuff for us. So, um, everyone's bacterial composition is a little bit different. And we've really co-evolved over many, many years with our microbes. Uh, and they serve a lot of really important functions for us. So they help us adjust our food and extract nutrients from our food. There are a lot of things we would not be able to digest at all without our microbes. And then thinking about what's really important to our discussion today is the widespread impact that the gut bacteria can have through a lot of different mechanisms with regard to the immune system.

So about 70% of the body's immune system is really housed inside the gut, which is huge, right?

Roz: Uh-huh.

Ilana: ...and so, there's a really big opportunity there for some interactions. The gut bacteria can directly interact with the immune system through what is on the surface of the bacteria, and then through different metabolites that the bacteria secrete in response to dietary input. So, there are receptors on the surface of immune cells that can recognize the bacteria as well as their metabolites, and then they're going to behave differently depending on what kind of signals they're receiving. So if there's a brand new immune cell in the gut, cause we just said that 70% of the immune system is, is sitting in there, right? So there's this brand new immune cell in the gut, then that can be influenced to become either a cell that is more pro-inflammatory or a cell that is more anti-inflammatory. And that's going to depend on the signals that that cell receives when it's developing. And that's going to be different depending on which type of bacteria are living there. And it's also important to know that the gut bacteria can also release these metabolites into the systemic circulation, and that is going to impact all the other organs in the body, including the brain.[(4:00)]

Roz: So you sound very excited and very into it. when you talk about this. Can you just give us a little background on how you got interested, um, and involved in this work?

Ilana: Yeah, sure. Um, so there were a couple different things I would say that inspired my interest in this line of research. The first is something that I think inspires all of us who are involved in MS research, which is the observation that despite the fact that we've made so much progress in the last few years, in terms of advances for treatments, we really do still have a long way to go. And there's a lot of work to do to really, you know, maximize outcomes for people living with MS. So that's kind of the first thing. And what that means is that we need to be exploring all of our options for managing MS better from as many different angles as we can. Um, the other piece of it for me was really my experiences with my patients, uh, early in my training/ People were always asking us about diet and the gut, and we really didn't know what to tell them.

And at the same time, it seemed to me that my patients who had the healthiest lifestyle habits seemed to fair better over time. And I thought, you know, I really think there's something here and we need to look at it more closely. And it kind of just happened that at the same time, uh, so this was, I did my fellowship, um, in, you know, 2011 to 2013, and that was kind of around the time where there was this new line of research opening up everywhere in medicine exploring that role of gut bacteria. And so, it, it's kind of put together a couple of different interests for me and, and that's how I got into it.

Roz: So that's a great segue into my next question because I think people, um, ask you and they ask us it can do, so what, what about my diet? Do I actually have control or influence over this incredible relationship you're talking about between the gut biome and the immune system? Um, so what [(6:00)] should people be thinking about eating if they want to have the best possible impact on their gut microbiome?

Ilana: Absolutely. Really important questions. So, uh, we mentioned that the composition of the gut microbiome is going to be different for everybody. And there are a lot of different factors that are going to influence the identity of those bacteria, which as we said, is gonna be important for determining what the influence is going be on the immune system. So things like whether you were born vaginally or by C-section, whether you were breastfed as a child, different infections that you've had, there are many things that we can't necessarily control, but the biggest long term driver of the gut microbiome is something we can't control, which is our diet. Um, diet has a huge impact on the type of bacteria that are there, the bacterial composition, as well as the identity of those metabolites that are produced by the bacteria that are living there. And so, diet is really important in terms of it, it being an influence on bacteria.

In terms of dietary recommendations for people living with MS, this is a huge topic for me and related to, um, this whole area of gut microbiome research, but, um, you know, also separates, I think there's a lot of different mechanisms potentially at play there. We don't yet have recommendations that I would say are evidence-based for people living with MS for saying, "Okay, this particular diet is definitely going to benefit your MS, and this is definitely what you should do." We're not at that point yet. Where we are is that we have, uh, a lot of really great people doing research on different dietary patterns and we're learning more and more all the time. Um, so I think we're, we're a few years out from having really good data. Um, you know, there's been some pilot clinical trials and now we're trying to work towards scaling [(8:00)] those up, some observational studies, including some that we've done here at Sinai, but a lot of really good ones, um, that people are working on. So I'm hoping we're going to learn more about this over the next couple of years.

We do have some kind of general recommendations. Um, I'm part of the national MS Society as Wellness Research Working Group, and fortunate to work with some really fantastic people there. Um, and we have a nutrition subcommittee where we've developed a few recommendations where we've come together and said, "Okay," even if we can't say we think diet A, diet B, diet C is better, um, what are the kind of unifying factors that we can all agree upon that we think are going to be good for people living with MS that we feel comfortable getting behind, especially as clinicians, right? If we're going to make a recommendation, we want it to be something that's based on evidence. Um, we want it to be reasonable. And so, we've come up with a few, uh, different things, and those are posted on the national MS Society, uh, website, which I, which I definitely recommend checking out.

But the things are, are kind of, kind of the things that make good sense. So, um, you know, preparing foods at home as much as possible, uh, limiting processed foods as much as possible, steering toward fresh foods. Um, you know, if you're going to eat grains, favoring whole grains over highly processed and refined grains, things like that, which, which we all agreed were things that would be good for general health. Um, definitely favor a healthy gut microbiota. And even if we can't say for sure, you know, these are the habits that are going to benefit your MS in terms of acting as a disease modifier. We thought these were reasonable recommendations for promoting general health, which is also really important, right? People who are living with MS are not, are not just people with a single disease. They're whole people, and we need to really pay good attention to [(10:00)] general health as well.

Roz: So let's say we convince everybody to shift to this healthier, I assume it's close to a heart healthy diet...

Ilana: Mm-hmm.

Roz: ...the kinds of things that people hear about.

Ilana: Yep.

Roz: And everybody makes this magical shift to the healthier diet, uh, diet, will people feel better? Will they see their MS get better? And this is, this is similar to a question we hear, let's say about taking a disease modifying therapy. Well, if I take this therapy, am I going to feel better? Am I, if I take this therapy, is my MS going to behave differently? So we get the same kinds of questions around diet. So what can people expect when they make this shift to a healthier diet?

Ilana: This is what we're working on right now through research and the work that's been done so far, um, by my colleagues that I mentioned and, and, and by us here at Sinai. I think has shown that making different dietary changes kind of toward a more healthful pattern, whichever pattern it is cause at this point there's been a lot of patterns that have been studied, does seem to make people feel better. That part, I think, we can feel fairly comfortable, you know, using the pilot studies that we've done, even though they're small. Um, I think we know that, that by shifting diet we can definitely help people feel better. Yes, we do need to confirm that in larger studies, we need to do more work on specific patterns, and people are...

Roz: [coughs]

Ilana: ...doing that. But I think the bigger question that our patients tend to ask us, um, is, you know, can this be a disease modifier? And, is this going to really help me in the long term? Is

it going to make me have less relapses or less MRI lesions? Is it going to prevent disease progression? Is it going to help preserve my cognition? You know, these are, these are the things that, um, we really need better research to be [(12:00)] able to answer. So we- we're doing that. You know, we're, we're trying, um, we've done some observational work, um, our group and others that is getting published. Um, and so, we're making progress. We're hoping to do some more longitudinal studies that look at the impact of diet and gut microbiota over time. And we have a couple in the works here that we're really excited about. So, definitely, stay tuned. Um, and over time, what we'd really love to do are some bigger interventional clinical trials that look at some of the outcomes that we use in our pharmaceutical trials. So that look at things like brain volumes, um, and, and, uh, disease progression. And so, we can really, you know, see the impact, but that's something that's going to take some time and some funding to get done, so we're working on it.

Roz: And those of us who have worked in, in MS for a very long time are, are used to hearing that we have to have patients, have patients, but it is very exciting to hear that this work is going on. Um, and so glad that you're here to tell us about it. Do you have any final takeaway about the gut microbiome that you would like to share?

Ilana: I think, um, the one thing I do tell my patients when they ask is there one thing I can do, you know, um, to promote a healthy gut microbiome is that I tell people the more you can steer toward, um, fresh foods and the less that you can rely on processed foods I think the better off you're going to be in multiple spheres. I think that's going to make you feel better. And, you know, as we were saying, even if we don't have hard evidence at this point that it's going to make your MS better, um, my intuition is that likely it, it will,. Um, we're, you know, we're going to wait for that evidence. We're going to keep working toward it. But in the meantime, I think that's kind of one, one change that people can make. And, um, and I think it's something that's reasonable and I usually will help people talk through, you know, what are [(14:00)] some small changes that you can make in your diet that will kind of push you a little more towards some fresher things. Um, and I, I do tend to find that helpful.

Roz: Well, thank you very, very much. I, I appreciate your being here and taking the time for us. And I look forward to talking to you again next month about vitamin D and other supplements. So, thanks again.

Ilana: Thanks again for having me.

[music]

Roz: You've reached the end of another episode of the Can Do MS Podcast. I'm your host, Roz Kalb, and thank you for listening today. I'd also like to take a moment to thank our generous sponsors for their support. Thank you to EMD Serono, Novartis Pharmaceuticals, Sanofi Genzyme, and Genentech.

If you enjoyed this episode of the Can Do Podcast, please be sure to join us again next month. We'll have Dr. Ilana Katz Sand back for another great conversation this time about the very important and interesting topic of Vitamin D and other supplements. Until then, be well.

[music]

[END]