



Live Well Today Webinar Series

Meditation, Mindfulness, and Parkinson's with Dr. Sarah Munukutla and Dr. Evelyn Ooi

Davis Phinney Foundation

Note: This is not a flawless, word-for-word transcript, but it's close.

Melani Dizon (Director of Education and Content, Davis Phinney Foundation):

Hello everyone, and welcome. My name is Melani Dizon. I'm the Director of Education and content at the Davis Phinney Foundation, and I'm really excited for this interview that we're going to do today. We're going to be talking all about mindfulness, meditation, and relaxation. And I have two great people here today, Evelyn and Sarah, and I'm going to let them introduce themselves and then we're going to get right into it. So, Evelyn, can you tell everybody who you are and how you got involved in this work?

Evelyn Ooi, MD (Assistant Professor of Clinical Neurology and Assistant Attending Neurologist, New York Presbyterian, and Weill Cornell Medicine):

Sure. So, I am a movement disorder specialist, so I completed a general neurology training, and then I spent an additional two years in a movement disorders fellowship, so focusing on people with Parkinson's Disease and other movement disorders. So, I got into the movement disorders subspecialty because of my personal background. I have family members with Parkinson's Disease. And so, this is being able to be involved in the care of people with Parkinson's Disease is very near and dear to my heart.

Melani Dizon:

Okay, great. Thank you so much, Evelyn. How about you, Sarah?

Sarah Mulukutla, MD, MPH (Neurologist, St. Anthony Community Hospital)

My name is Sarah Mulukutla. I am a general neurologist and I also have an interest in integrative neurology. Meaning that I'm really curious about all possible avenues that we can use to treat neurological disorders, of course, with an evidence-based behind it. My particular passion is meditation, yoga, and the impact of thoughts. And in Parkinson's Disease, we see that the mental state does have an impact on it. And I've been fortunate to work with Dr. Evelyn Ooi and Cornell to start some research in this area.

Melani Dizon:

Great. Thank you. Well, I'm excited to talk about it and I think you have a video to show us. Yes?

Sarah Mulukutla:

I do. Words are sometimes much better. I mean, pictures are sometimes much better than words. So, if I can screen share, let's see how this works. But I'd love to show a video. And it's our, it's actually what catalyzed our work. It's a short video, about 45 seconds with a gentleman who has given permission, by the way, thank you, Chuck, for allowing us to share your video. And what we're going to be watching is his hand movements that, and how they improve after a short session of relaxation, which I can talk a little bit more about. So go ahead and start the screen share. I think I can go this way.

Chuck:

Every time I can do it. It makes me tremor; I can even try. But if I stop doing that-

Sarah Mulukutla:

So, now we've done some breathing exercises and we have retained the right hand to move mindfully, and Chuck is going to increase the speed just a little bit. Keep going. Very good. Good.

Melani Dizon:

Great. So, Sarah, what's going on in this video that allows the improvement of those movements?

Sarah Mulukutla:

Yeah, well that's what we're really interested in. And if we're okay with just a couple-minute detour, I can also just, it is a little bit of some information here, but I'd love to share that. So first of all, in our work, we do a lot of education, and we talk a lot about what's happening in the brain and in particular in a Parkinson's brain. And I'm going to show just two quick pictures. But basically, what we have is a human brain. And I'm going to take, you know, it has two hemispheres. And when you look straight down the middle, you see these really important areas in the center of the brain. And that has a lot to do with Parkinson's basal ganglia and thalamus. And what we're looking at is connections between this deep area and to the front.

And just to put it in perspective, the brain has about a hundred billion neurons that all must learn to work together. And they work by connecting in networks. So basically, what we think is going on in that video is that after relaxation, the networks that are helping the movement have seemed to be working better. So, it's not a static state, it's a dynamic state. And what we're trying with are exercises that we're doing is helping these connections work a lot better. So, two things we think are going on. One is that when the body relaxes, we can stimulate something called the parasympathetic response, the relaxation response. And second of all, our

thoughts are things, and our thinking network is very prominent in our brains. And what we actually do is help people learn to quiet their thinking network. And in Parkinson's, we do think that that helps the movements and the connections come together much better. Those are the two things that really, we've been playing with and trying to develop and investigate and work with our research.

Melani Dizon:

Great. So, Evelyn, what does the research say about this?

Evelyn Ooi:

Right now? We know that people with Parkinson's Disease are very susceptible to the negative effects of stress and can be a double hit because, in people with Parkinson's Disease, you can have non-motor symptoms like anxiety and depression that can be more prevalent in the Parkinson's Disease population. So, when we say that people with Parkinson's Disease are more susceptible to stress, we see it their motor symptoms worsen, like their tremor, their stiffness, their slowness, their Parkinson's medications, your dopaminergic medications are less effective when they're in this high level of stress. So, we know that strategies to reduce this type of stress can be very helpful in Parkinson's patients. And research has shown that making use of mindfulness techniques to reduce stress can benefit people. So, we really want to, you know, build on the existing literature, and research and identify ways and see, you know, what's happening on a network level and what strategies can we implement and how is it working to help reduce the stress and improve the motor symptoms in people with Parkinson's.

Melani Dizon:

Great. So, Sarah or Evelyn, when you were talking about mindfulness practices, what specifically are you talking about? I mean, yes, you know, probably hear some breathing and things like that, but when somebody is listening to this, they're like, well, what are those things? And have you found that they have sort of an equal effect?

Sarah Mulukutla:

I'm happy to take this one. So, my take on mindfulness, and it is interesting because there really, it's a skill that develops, but the definition is not so easy to grasp. But we have this capacity to be aware of our thoughts and meditation strategies. We call this the observer. So, you can be completely daydreaming, have this, having this whole conversation in your head. You can be say reliving a conversation and just not aware of sense or sounds or sights around you. We're kind of living in our head or we can suddenly be aware of our thoughts. And that's what we call mindfulness. When you're actually aware of your thoughts and your emotions in the present moment. And we do think that that's very much part of the brain. There's a skill and that's one of the skills that we have been working on.

There's a way to measure it, how aware you are. And so that's one of the strategies that we use teaching people to become aware of their thoughts. And that's actually what traditional meditation is, that you sit in a quiet place for the whole purpose of learning to observe your thoughts. And the first couple of times, or first many times, maybe months or weeks or years takes a long time actually, because we're so used to, our thoughts are just running all the time. But what you sit, and you practice catching yourself daydreaming or wandering, we call it. And if we keep doing this practice. You do it once or twice a day, suddenly you become aware of your thoughts on an ongoing basis. So, as you're walking around, you're aware of what your mental state is, how active is your mind, and what are you thinking about at this moment.

And that's what we think to some extent may be beneficial in Parkinson's. And I'm saying everything because this is all up for investigation. But what we do know is that when you become aware of your thoughts, the thinking network quiets down. Can I show a quick slide? I did prepare something because I think this might be helpful for people. And so, let's see. Where is my I'm going to have to do a desktop and then we're going to find this. Okay, sorry. So here it's, remember that half of the brain that I showed before, that's really a connection between the deep matter and the front. Our thought networks are also there. What you see on the bottom picture is signs of activation of your thinking networks. Okay, so this is done in the functional MRI and what this shows, and I'm focusing on the left picture, that midline picture, that when people are lost in thought, they are really it activates the frontal areas and the areas that are deep in the center of the brain, really quiet midline. As you see in the middle one, what you're looking on in the middle picture is now a cross-sectional from the front to back.

I also want to give attribution to the research authors. These are not our images; this is from an open-access article. So as long as this is for educational purposes, we're allowed to share their research. But this is when they're specifically looking at what is mind wandering, trying to capture our thinking networks. And again, this functional MRI, it's looking at metabolism in the brain and it shows what areas are active during the brain. But the second fascinating picture is that they have the same image on top. This is mind wandering without meta-awareness. Meta-Awareness is that term I mentioned. When suddenly you become aware of your thought, you have an awareness of your awareness, meta-awareness, the bottom picture shows as soon as individuals in the scanner became aware that they were mind wandering, those thinking networks calm down. And that's what the practice of meditation does.

We learn to slow down and stop our thinking networks without the practice of meditation. In our busy world, most of us are ruminating or thinking all the time, even when we're driving or when we're trying to concentrate, when we're eating, and when we're doing the dishes. We're still in this wandering state. The last picture I'll show is this is the motor circuits that are involved with motor, motor planning, and execution in the brain. And this comes from a different group. This is from the Lancet Neurology, also an open-access article that really you can see is the same networks involved. And we're doing a lot of reading. We're finding that the

motor and the cognitive networks are intertwined. So, the exciting research for us is can you start to control motor and Parkinson's, you know, with the cognitive control?

These arrows, just to explain a little bit as you see, some names might be familiar, the basal ganglia, and the thalamus. And this is shown in a couple different networks in the brain. How, and what areas that they're related to? So, some are goal-directed, and internally driven. The other one is stimulus meaning from the external. And we know that we see differences in Parkinson's as well for that. So, what we're doing is really teaching people Parkinson's to learn to control their cognitive minds. We do mindfulness learning to stop your thinking network. We practice concentration we can do some visualization and motor planning, and we also do emotional training. time generating positive emotions because that also helps build our cognitive reserve for decreasing stress and anxiety and teaching ourselves to be in a positive state. We have control over a lot of these things.

Melani Dizon:

Yeah. One of the things I've always wondered, and I this just, maybe I'm just going down too far of the rabbit hole. Two things. One is to have an awareness that you have a thought or that you're having these thoughts in your, in this loop or whatever. And then the second piece of that is to have the awareness that you're not the thought like that these are just common thoughts and like you, you're not having any new thoughts. They all, everyone else is having the same thoughts. Does anything change for the fMRI when that's triggered? Because that feels like an even bigger piece of that awareness to say, not only am I aware I'm having them, but I'm also aware they're not mine. I don't know if there's any way to visualize that, but I imagine I'll just totally clear my head when that happens. like a totally clear brain. There's no nothing there. The second thing I'm wondering is what about people with Parkinson's who have real cognitive issues where they are, maybe they have a mild cognitive impairment, or maybe they have greater cognitive impairment. Has there shown anything when you're trying to teach these people mindfulness? Is there anything different showing up on their fMRIs?

Sarah Mulukutla:

I can take a stab at this question and then maybe Evelyn you can jump in afterward. Verse the literature on meditation in the brain is actually quite rich. And that is exciting for us. That came from the meditation field because suddenly we have some evidence of that when you do modulate your mind, your networks change. That's pretty reliably shown. There's some pretty interesting research on that. And what I can say is that they've studied different types of meditations and different states, it's not clear-cut, and we don't have one answer for it. The brain is dynamic, but there are different ways we can capture that. You can capture it by EEG, which is very quick by MRI. So that's probably a whole other conversation that we can get into at some point. But that's why actually in the research we're doing, we're really looking at what is it that we want to study and what is the best way that we want to get there.

And so, we're actually spending some time just collecting some pilot data. We're actually working with people with Parkinson's who are interested in either learning meditation or having done Medi or already experienced either before or after diagnosis and taking a look at what their brain waves, how they change structure networks and there's a way we can like that. So, a lot to investigate. The second question about cognitive dysfunction is that we actually know a lot about how the networks get disrupted both in Parkinson's with and without cognitive disruption. And that is also informing our approach because we're looking at network connectivity. This whole lineup inquiry is driven by the fact that network connectivity can change. You know, that's what neuroplasticity is, is all about. When you have cell loss, that's, you know, harder probably to address. But if we're looking at downstream effects and we can know that you can modulate some of these networks with exercise, with you know, meditation, then that's where we want to target to maximize that connectivity.

But I will say that in people with mild cognitive impairment, there is research showing that they can learn meditation and their memory, and their thinking improves after meditation. So, we don't have that per se for Parkinson's with cognitive dysfunction yet. But we have that for other correlate conditions. So, we know that they certainly can learn meditation, they benefit, and their brain shows changes. We do have the brain results. One last small piece that the cognitive function in Parkinson's we know is also attention driven, is that there is an attentional deficit, and we want to teach attention. That's part of meditation that you learn to stay focused for a long number of times and not be disrupted. So that may, that also may be one avenue to look at and to address what's going on with Parkinson's.

Melani Dizon:

Love it. Evelyn, is there anything you have to add to that?

Evelyn Ooi:

I am hundred percent agree and I will say that, you know, going back to Parkinson's Disease really is more than just the movement symptoms. We see non-motor symptoms like the mood issues, anxiety, depression, and cognitive issues. And you know, you asked a two-part question maybe a little bit of a stab at answering both is that, you know, patients with any chronic neurologic condition, not just Parkinson's Disease, we know that any chronic neurologic condition symptoms can get worse when the body is under stress, whether it's emotional stress or physical stress, that's something I say all the time to my patients. So again, there may not be specific research on patients with Parkinson's Disease-related cognitive impairment or Parkinson's Disease-related dementia and how they specifically respond to meditation awareness. But from literature, from other avenues, we know that people with cognitive impairment, like Dr. Mulukutla, said, absolutely benefit from mindfulness. And then this is why this is such a rich area right now too, you know, do further research looking at those specific questions and seeing what's happening on a network level, what's happening in the brain when we make use of mindfulness techniques.



Melani Dizon:

That's so great. So, what, let's talk a little bit about what's coming out on this. So, what is the exciting news from Cornell on this front, and then do you have any feedback from participants that you've worked with that you could share?

Evelyn Ooi:

Yeah, so I'll take this. So, at Cornell actually we held a course last year. So, this happened, this course happened from March to May 2022. So, the Cornell-sponsored session is a series of doses of a medication course consisting of six online sessions. And Dr. Mulukutla provided instruction on mindfulness, and this was specifically geared toward people with Parkinson's and their care partners. So, it was offered as part of a community grant from the Parkinson's Foundation. Meditation is one of the wellness initiatives that we focused on among others. It was very well received, if I could just read some, we did quality improvement research. So, we looked at, you know, answers from participants before and after the course. And if I could just read you some of their feedback because, across the board, we received fantastic feedback. So, this is just a sample of some of the answers that we got.

So, one person wrote, not a day has gone by where I haven't thought of being in the moment, and being mindful changed my life. Another participant wrote this program surpassed my expectations and more than met my needs throughout the day. I think about positive fluid connections in my brain and my graph. And then final quote, one person said, this program was a life-changing for me. Six weeks was not enough time to take what I learned and apply it to my life. I need more guidance to have to make this impact and the changes I need in my life. Well done. And I think an important thing to note is that, you know, we also ask about certain aspects of the course, what they liked and what they did not like. And a hundred percent of participants' stress. The fact that Dr. Mulukutla really led to the course at a good pace. So, she has vast experience in this field. She's very well received and so for future programs going forward, you're very lucky to have her.

Melani Dizon:

Yeah, I love that you did it with care partners. So, they participated with their person with Parkinson's, and this was in person or virtual did you say?

Evelyn Ooi:

So, this was virtual.

Melani Dizon:

That's great. I love that. Is there anything that you would add Sarah to that experience?



Sarah Mulukutla:

It was just a really positive experience. I'm happy, this is actually the beginning of our partnership with Cornell that I'd known some of the faculty, but they asked me to lead, you know, to lead this course. We developed it together; it went so well. We're launching it again. People have been asking for it. We're excited. I mean, it was a nice community aspect to it, right? So, we had really, we know we sent out the link and people had family members come. We had multiple people in a room. And the family learned together, I think. And we shared stories under each week. So, we got to know one another. It's a community, but it really led us to realize there's a thirst for this that people responded well to it. And so that's actually, we are continuing our partnership and we actually moved now to an online platform where we have a formal curriculum and we are actually hoping both to do research in the impact of the course, as I mentioned in the lab, but we're also working to make it more accessible to people even you know, beyond, beyond Cornell, because we do have interest in it.

Melani Dizon:

Great. So, I know that you're going to be launching it pretty soon. Can you tell people like what's the format, and then when it comes to the research and doing research and sort of your next cohorts, what does that look like?

Sarah Mulukutla:

I can talk about the course. We had six sessions last time and we're repeating that. And what it entails is over six weeks we build gradually we talk by first learning something like breath meditation and then practice it for longer amounts of time. And so first you learn awareness and then we learn concentration which really is informed by some of the ancient scriptures. So, we're rooted in some of the Eastern traditions as well. But, and then we move towards positive emotions, as I mentioned, gratitude. And then we have a couple of sessions about how mindfulness can be applied to movements, to walking to posture, and stress management. That's a really important one. So, there are actually prompts for each week. Participants can think about focusing on this one aspect. And what we found is that, and we meet once a week on Zoom. There's a bunch of course materials and then by the end of it people build their, we, oh, we meet for meditation each time. We do practice meditation together. And everyone is encouraged to practice on their own as well. There are instructions about how to begin a meditation practice. So, it's a course on meditation and we do include some aspects that we think are relevant to Parkinson's Disease.

Melani Dizon:

Oh, I love the idea of having specific strategies for, you know, movement or walking a mindfulness if you're, you know, you're, if you're having trouble with that. I love that idea.



Evelyn, is there anything on the research side of it for this next cohort that you want to talk about?

Evelyn Ooid:

Yeah, so like I said, this is really in the preliminary stages of collecting information. We do have our first initial donation to fund our pilot study. And I would just like to point out that it was from a participant in our initial program. So again, we really had very fantastic feedback from that initial program. So, our goal for this year is to also apply for a large grant to cover more investigative details and more investigative avenues. So, things along that route are symptom trackers and more formal symptom trackers for tremors, for stuff notes for gait measurement, and also to look at EEG networks so that we can really see what is happening in the brain with these mindfulness techniques.

Melani Dizon:

That's great. So where can people learn more about the program, Sarah?

Sarah Mulukutla:

So, we have we've now moved to Teachable. So Teachable is an educational course and it's mindfulneuro.teachable.com. And I think we've used Teachable, so our community will be familiar with that.

Melani Dizon:

Okay. Mindfulness dot Teachable dot mindfulness. Mindful Neuro. Mindful Neuro.

Sarah Mulukutla:

Yeah. Yeah. We actually have a whole group now called Mindful Neurology because we're looking at mind-body medicine, but, so it's MindfulNeuro for short one word, mindfulneuro.teachable.com, and that has a-

Melani Dizon:

Okay. I'll definitely share that in the link in the show notes. Yeah. Transcript. and yeah, I mean, you know, we've had so many people talk about this and want more, and so I'm excited that there's something else in, you know, being backed, and partnered with Cornell and all the research that you're doing. People want to be part of that, and people want to see how they contribute, and this is a really great way to contribute and also get something really powerful out of it. I wish I; I talk a lot about instead of leaving, having people leave the doctor's office with a book or a manual on what is Parkinson's is actually like, actually here's some tools that you're going to be able to use to before you sit down with that book to handle it. Right? And so,



this is, is a great, a great option for people and I hope that people start to do this really early on in their diagnosis because it can help for so many years to come. So, I'm excited to share it and I really appreciate you talking about it. Is there anything that I forgot to ask about regarding mindfulness in this program that you want to share?

Sarah Mulukutla:

I don't think so. I just want to-

Melani Dizon:

I think we're good.

Sarah Mulukutla:

Yeah. I just wanted to say thank you for having us on this podcast. Obviously, Davis Phinney does is such a support for individual Parkinson's. We're thrilled to have these conversations with you. We do think they're believe is in alignment with what we're doing, and you know, what a need that we're aiming to meet. But it's great to talk with you Mel, so thank you for having us.

Melani Dizon:

Thank you, Sarah, and thank you, Evelyn. And we'll see all of you real soon. Thanks.

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