Mind & Life Podcast Transcript
Amishi Jha – Attention, Mind Wandering, and Stress
Original Air Date: June 24, 2020
Retrieved from: https://podcast.mindandlife.org/amishi-jha/

Opening Quote – Amishi Jha (00:00:01): *Attention, working memory, cognitive control, those are the workhorse systems — not only for being able to make decisions and focus — but regulate your mood, deliberate decisions, planfully act, even have empathy and regard for other people. In some sense, the capacity to be present in your life and receptive to what you're experiencing, they're all attention. The capacity to understand what motivates you, your capacity to care for others and have compassion, these are all within the purview of attention. So attention training, it's not like we're training people to be robotic, mindless drones that just go and do stuff, we're really actually doing the exact opposite.*

Intro – Wendy Hasenkamp (00:00:46): Welcome to Mind & Life. I'm Wendy Hasenkamp. Today I'm speaking with cognitive researcher, Amishi Jha. Amishi has been studying mindfulness and its impact on attention and working memory for almost 20 years. She was in on the ground floor of contemplative science, before it was even really a field, and has been a central figure in its development.

(00:01:08) In this episode, Amishi shares what she's learned about using mindfulness to train attention, and its value particularly during periods of high stress. As you'll hear, Amishi takes a broad and nuanced perspective on attention, arguing that it's much more than just our ability to focus on the task at hand. Rather, attention is foundational for capacities like decision-making, emotion regulation, and even empathy and compassion.

(00:01:32) In today's conversation we talk about her own experience of significant stress and how that brought her to contemplative practice, what she's learned about using mindfulness to train attention and working memory, the relationship between attention and stress, bringing mindfulness to military populations, the pros and cons of a wandering mind, the relevance of mindfulness during COVID, and her reflections on the state of contemplative science, including her thoughts on gender and racial diversity in the field.

(00:02:03) I should note that I spoke with Amishi in mid-May, before the murder of George Floyd and the ongoing protests against police violence. So while we don't speak directly to those issues, she does describe how, in her experience, bringing mindfulness to military populations can train awareness in ways that support critical skills like discernment, negotiation, and importantly, de-escalation.

(00:02:28) Links to Amishi's work and further information are in the show notes, if you're interested in learning more. And she's also in the midst of writing her first book on the science of attention, which will be available in 2021. I hope you enjoy this conversation, and maybe it'll make you think about your own attention in a new way. It's my pleasure to share with you Amishi Jha.

Wendy Hasenkamp (00:02:47): Well, Amishi welcome. Thanks so much for joining us.

Amishi Jha (00:02:54): Thank you so much.

Wendy Hasenkamp (00:02:55): Before we get into your research on attention and mindfulness, I'd love to hear how you first got interested in studying meditation.

Amishi Jha (00:03:03): Ah, okay. Requires a little bit of a historical journey, I guess. So I grew up in a Hindu family; my parents both practiced meditation. I mean, literally from my earliest memories are of waking up and seeing my dad doing his mala. And so it was always a big part of my personal history, but I truly never thought it was for me. You know, I was a Western-trained scientist, hard-nosed, evidence-based only, and absolutely was a skeptic, and thought it was something that my parents did, but not me.

(00:03:40) So it sort of had like strikes against it, in some sense, as a starting point for me. But when I was in my first couple years of being an assistant professor — this was while I was at the University of Pennsylvania — I experienced essentially a big moment of burnout and overwhelm, just having a small child, running a lab, teaching classes, just everything kind of came together in this terrible crescendo of "I can't do it anymore!" kind-of feeling. And so it was almost like I didn't know what was happening to me, thought everything was okay, but I somehow lost feeling in my teeth from grinding.

(00:04:17) And my wake up call was having to give a lecture at a faculty retreat, and not being able to actually feel my teeth, and it was quite a panicky moment for me of, how am I going to do this and what does this mean? And I remember going to the dentist thinking it was some kind of dental problem, and he's like, "Oh no, no, no, you just... you're very stressed. Just have a couple of glasses of wine and you'll be fine." I'm kind of like, "That's not a sustainable solution."

(00:04:43) So, I was starting to realize that, yes, this is something real, stress is happening to me, and yes, it is permeating with sort of a fog in my life, and noticing more and more how disengaged I felt — even from the things that were so important to me, my child, my husband, et cetera. And I remember, it was sort of funny because Richard Davidson, who's of course a Mind & Life community hero, was part of the story. Because that same spring that I was having all these issues with not being able to feel my teeth, and stress, Richie gave a seminar. It was back in 2003, I want to say.

Wendy Hasenkamp (00:05:19): Oh, wow! That's very early days.

Amishi Jha (00:05:21): Very early days, nothing had been out about his mindfulness work, meditation work. I mean, back in the 70s, yes, but none of the new stuff had really been published yet. And I remember there was a talk, a seminar at Penn, and he... it was an affective neuroscience talk. So he was giving just his cutting-edge research on that. But at one point he showed these two functional MRI images. One was when people were induced experimentally to be in this kind of negative mood, and on the other side was one where people were induced to be in a positive mood — just through sort of autobiographical recollection and music manipulations. So very artificially in the lab, but what was so striking is when you looked at those two images, they looked drastically different. And at the end of the lecture, I raised my hand and I just said, "How do I get that brain, the negative one, to look like that brain, the positive one?" And he said... he looked up and it was sort of the end, so maybe he was trying to be efficient in his response, but he just said, "Meditation." And I was kind of like, "What?!"

Wendy Hasenkamp (00:06:23): Right. Especially at that time.

Amishi Jha (00:06:25): Like, what? [*laughter*] Has he completely lost his mind? Did he forget where he is? We don't say those words here, this is not appropriate... But it kind of gnawed at me a little bit, and he and I got a chance to talk after, and he was telling me about the new research that they were doing, the collaborations with monastics, and how they were finding really interesting and positive effects.

(00:06:44) So, that sort of stuck in my head. And then later on, probably that same week, I went to the Penn Bookstore, just wandered around the meditation aisle of the self-help section, and ended up finding this little tiny gem of a book called Mindfulness for Beginners by Jack Kornfield. And I was like, "Oh, look at that, it's got a little CD in it. I'm just going to do this." You know, just like I got to try something. So kind of overcoming my own resistance to it, just started practicing, committed to doing it for several weeks. And all of a sudden, life was sort of different. I was changed. But noticing that these instructions that Jack was providing were all about attention, and how I placed my attention and noticing my mind. And it was a very different relationship to the content I had spent my entire professional life exploring.

Wendy Hasenkamp (00:07:35): And at that time, were you already an attention researcher?

Amishi Jha (00:07:37): I was already attention researcher. So I had gone to... From my undergrad days, my first attention project was in 1992. So already a decade had been spent studying attention as my graduate and postdoctoral work, and my lab was studying attention. But this seemed so different from the way we were approaching it. And so, my interest became personal, but my curiosity became professional, and I said, "We've got to put this to the test in the lab." And how awesome that I happened to have all the tools to study it using standard cognitive neuroscience methodology, and decided to do my first study, basically that fall. And then I haven't stopped since.

Wendy Hasenkamp (00:08:18): Wow. Did you... So you said you experienced... your life was changing, you could see pretty quickly. What kinds of changes were you noticing?

Amishi Jha (00:08:29): I think the first was that I realized that when my son and my husband were speaking to me, I could listen to them. And everything else felt like I already knew what I was supposed to do, or I knew what was next, or I kind of had these assumptions and-

Wendy Hasenkamp (00:08:46): Like autopilot?

Amishi Jha (00:08:48): Totally autopilot. And the worst was, before I had decided to start practicing was, my son had one of these Dr. Seuss books that he wanted me to read him every night, and I remember having no idea what he was talking about when he'd ask me questions about the book. I'm like, "I am so checked out, this is not what I want to do with my life. I want to live my life." And so that was what started happening after I was practicing is, I could see the expressions on their faces. I could notice when there was concern, or happiness. And it felt like I became more embodied in my life. And in my career, frankly. It's almost like, nothing changed about the outside circumstances — just as many classes, lab work, et cetera — but I felt more "there." And that somehow gave me more power and capacity to approach what I was trying to do better. That's how I felt.

(00:09:42) But that also gave me this real motivation to try to see how something like mindfulness training could help people like me, who were in high stress circumstances, but weren't going to just quit everything to do something else to feel better.

Wendy Hasenkamp (00:09:55): Yeah. So when you started trying to integrate the meditation angle and mindfulness into your research lab, this was still, as we were saying, pretty early days. Did you experience any pushback or resistance to bringing these practices in at that time?

Amishi Jha (00:10:12): So... Yes. I remember talking to my chair at one point saying, "I think I'm going to pivot some of my work to study this thing called mindfulness meditation." And he said, "Oh, it's sort of like a fun side project that you want to do?" And I was like, "No, I'm writing my first NIH grant on that topic. This is going to be a serious aspect of what I want to pursue." And he was sort of skeptical and kind of shook his head, like that's not really a smart idea. And I even talked to other people in my field. I mean, actually, even Richie himself I spoke to at one point, and he was like, "You know what? Why don't you continue your basic research, and have this be a second line of work, but have the basic research be primary?" And it seemed like a strategy that made sense, but my basic research just wasn't as compelling to me, and it wasn't as rich in terms of the unknowns.

(00:11:06) So I kind of couldn't help it, but it fully showed up in the way that the lab functioned. All of our mindfulness posters would be securely, way deep in the bowels of the lab, and all of our non-mindfulness stuff would be front and center. You know, as you walk into lab, those are the things that you'd see. So I was definitely feeling closeted about it, and feeling like even though I knew clearly what I wanted to direct my lab to do, it wasn't seen as the best approach.

Wendy Hasenkamp (00:11:31): So you were saying that you've become particularly interested in applying mindfulness for high stress populations, and looking at attention. In thinking about your body of work and your approach, can you share the main questions that you're trying to answer around attention, and how you approach them with your work?

Amishi Jha (00:11:47): Yeah, yeah. So I think that the first thing to say is it's... Once you start working with groups like medical students or first responders, service members, even people like accountants, they're not satisfied with just a "one and done" kind of situation. Meaning if what you do is helpful to them, there's a strong professional motivation by the organizations you're interfacing with to keep going. And that certainly happened to me, as it relates to the military work in particular.

(00:12:20) But my initial interest, and it's still part of my core interests, is the mechanisms of action. How is it that you can sit down quietly by yourself, focus on the sensations of breathing, notice the mind wander, and then that transforms everything about your personal and professional life? I mean, it just seems like what? How is that possible?

(00:12:42) So understanding how different aspects of attentional functioning — different attention systems, different aspects of working memory, their relationship to long-term memory, looking at mind-wandering — and then the brain bases of all of those was absolutely what I was interested in, and still from the beginning has been a key part of what I do. But when it came to the work in these applied contexts, the shift was not so much in how does it work? It was really, does it work for these people, and how can you make it work better? And the "better" was really interesting as well because it wasn't simply stronger effects, it was how do you make this so it's more accessible and of interest and scalable for those communities?

(00:13:25) So what ended up happening is that I, because I had already established sort of a core set of metrics with regard to attention and working memory —, that we found reliably over and over again, across multiple populations, whether they're undergrads or other kind of groups were benefited by certain mindfulness training programs — I could lean on those. Those were going to stay stable. And what I was going to start manipulating through the series of grants was how to deliver it better.

(00:13:51) And so, one set of questions is really around that training program aspect. How much formal time do you need with the trainer? What's the minimum amount of time that you can offer it? And then, if you're going to really start cutting time, what absolutely needs to be in the training programs for there to be tractable benefits for attention and working memory? So the program questions were always there.

(00:14:13) The second was more rigor regarding comparing it to something else. Right? So if you just offer mindfulness [compared] to nothing, that doesn't get anywhere close to the gold standard we want for science. We don't have randomization-

Wendy Hasenkamp (00:14:26): Yeah. I wonder if we could break that down a little bit for some listeners who may not be so familiar with experimental design. Because the issue of control — or the comparison groups — is huge in this field. And I love the way that you have approached that.

Amishi Jha (00:14:39): Yeah. So the key for science, and we're seeing it right now, right? We're dealing with COVID and trying to find solutions for this terrible pandemic. We need to have some kind of treatment of interest, and then another (in most cases) active comparison group or active treatment that is not going to, we think, have the same impact. But if we compare a treatment to nothing at all, we have no idea why we see benefits. It could simply be that giving them anything — whether it's saying, "Oh, go take a spa vacation, or play ping pong every day" — could have had the same effects because you're just giving them something active to do.

(00:15:16) So part of the gold standard of science is to compare your critical condition, your mindfulness condition, in our case, to something else that is believably helpful not harmful, but probably works through some other set of mechanisms. So in our case, it was things like relaxation, or positivity training, or nutrition education — all beneficial in their own realms, but we didn't think that those were necessarily going to bolster attention. So those became key comparisons for us to see if and how mindfulness training would indeed improve attention, and those other conditions would not. But everybody seemed to like doing both conditions, were happy doing them, and it felt like they were benefiting from some kind of engagement.

Wendy Hasenkamp (00:15:57): Yeah. You've also done work, which I think even gets to a more nuanced level of... I remember at least one study you did that compared doing a practice of meditation versus just kind of discussing it or learning about it. Am I remembering that correctly?

Amishi Jha (00:16:13): Exactly. Good memory. So that was several years ago now, but it was along the same kind of question, right? So if you have the same trainer, and you have something you're calling mindfulness training, what should be comprising the program that they receive? And I almost took a physical fitness analogy. If you've got a trainer and you go to the gym, do you want that trainer to show you basically the correct form and then do the reps with you, or do you want that trainer to tell you how fantastic exercise is and how bad lack of exercise is? And so the prediction from that point of view is pretty clear, just doing the reps is better than sitting there and listening to it, right?

(00:16:51): But we'd really didn't know with regard to mindfulness because mindfulness training, such a big part of the mindfulness training is home practice. So it wasn't just learning practice in the classroom with the trainer, but just doing it on your own every day. But when we parsed the two, when we had an eight-hour program offered by the same trainer — one program was training focused, the other one was what we call didactic focus, just topics around stress and mindfulness and the science of those — we found that essentially that didactic focused component was sort of death by PowerPoint and had no

impact at all. No impact at all. And the other one really had a significant, beneficial and protective effect for active duty soldiers.

(00:17:31) But I just want to mention one other thing regarding the trajectory of the work, because to me, again, it was this... Once we found beneficial effects, we could get it down to eight hours, we could get it down to four weeks of training, we knew what the key components were, we knew how much daily homework practice we could give them. And this was all work done in active duty military. At that point, the DOD essentially approached me and said, "Okay, we want to scale this up now. Or we want to do a larger trial with more trainers. How many trainers do you have right now?" And I said, "Um... one." (And she's not, by the way, just the trainer, she happens to be my dear collaborator who created the program. This was Liz Stanley at Georgetown.)

(00:18:14) And so they were sort of like, "That's sort of a non-starter for us. We need something that we can train people to do it." So a lot of the effort of the last five to seven years has been on building a new program from the ground up, that we felt anybody that we gave sufficient training to — and we're talking about training as little as 10 weeks — we could get them up to speed on how to deliver it, even if they had no prior knowledge of mindfulness training at all, and then have them deliver it at a sufficiently high quality that the participants would benefit. So that scalability question I think is quite interesting, but it's still paying attention to all of the key criteria you need to have to have solid training offered to people.

Wendy Hasenkamp (00:18:51): Yeah, that's huge. So I'm thinking about your interest in high stress populations in particular, like the military, and then the focus on attention. So somewhere in there, there's that link — that I think you were kind of starting to speak to from your own personal experience — about attention and stress reduction, or ability to operate during stressful situations. Is there a way to summarize what you've learned about the role of attention during stress, and how mindfulness can help?

Amishi Jha (00:19:21): Yeah. The first questions we had... Because I had not worked with high stress populations before. I mean, all my basic research was essentially undergrads that would come into the lab and we'd put the brainwave cap on them and see what happened. But now we were working with these high stress groups, a variety of groups, even including frankly undergrads and medical students, who are high stress. And we wanted to see what happens to attention over the course of some period of time — let's say the academic semester, or in the case of soldiers it might be pre-deployment training or deployment, or for accountants it may be the tax season, right? You could see for all these different contexts, what a high stress interval looked like.

(00:19:59) When we did that, just tracked them, had a series of attention tasks that tapped into something very important, which I'm sure we'll get into more, mind-wandering, and also tracked their mood. We gave it to them at the beginning of a high stress interval and then again at the end of the high stress interval. And what we saw aligned with my own experience and what probably every undergrad or professor will tell you — everything is worse at the end of the semester, relative to the beginning, right? You feel less clear, you feel less well, your stress levels are higher, your negative mood may be higher. And the worst part of it, especially for students is that... and by the way, that's the exact time period in which you have to perform well on your exams. So it's not just that there's this degradation that happens through the course of the demand of a multi-week period of time, but that performance can't suffer at the end of that period of time.

(00:20:50) So, that was a very important learning, is that okay, what we're going to be dealing with is, if mindfulness training does anything at all, it won't simply be, "Oh, we're going to make them better." It

may simply look like they'll be less degraded, they'll be more protected. And so the prospects — and I remember writing this in my grants and thinking, "Oh my gosh, they're going to think I'm nuts" — because what I was saying was: the success of this training will be if we see no change over time.

Wendy Hasenkamp (00:21:16): Right. So like, they have a baseline and it's just if they don't go down, but they stay the same, that's a win. Yeah.

Amishi Jha (00:21:21): Exactly. That's right. And if you think about us right now, just going through this pandemic period of time — and I certainly feel this myself — just as we feel strain and uncertainty or sadness and grief, fear, all these kind of preoccupations (which are not just made up, I mean, they're real, they're tethered to the reality that we're seeing in the world), they're going to have an impact on our cognitive functioning. And if we experience this kind of situation for weeks on end, there will be this accumulation of problems, meaning that the content is more and more prevalent in our mind, and our attention will decline. And we can see that for sure, and not declining is a success.

(00:22:04) So, that was what we set out to do. We wanted to see... And this goes back to the question you just asked me about what I've learned from our research. One line of research was essentially saying, "How do we make this most time efficient for time pressured groups?" If you say to an undergrad, "Oh, by the way, can you come to this two and a half hour class a week and practice 45 minutes a day?" They'll like, never respond to your email and hang up the phone if you try to call them. And it's worse when you're talking about service members, because you can't even get a leader to take a phone call and discuss such a project. So I had to make sure that we had done our best to make it as time efficient as possible, and some sense that it might work.

(00:22:41) So that's what we set out to do, is offer training during high stress periods. And indeed that's what we found is that, when we do nothing at all, there's a significant decline in attention, and an increase in mind-wandering, and an increase in negative mood and perceived stress. But then when we offer mindfulness training to a comparison group from the same population, we see stability in attention. And again, same thing with mood and mind-wandering.

(00:23:07) – *musical interlude* –

Wendy Hasenkamp (00:23:32): The programs that you've developed are good examples of ways that practices that were originally developed out of the Buddhist tradition have been adapted, and applied, and secularized, and used in the West. Sometimes this can bring up debates in the field about if things are missing from the original tradition or not. So how do you think about that translation?

Amishi Jha (00:23:58): I guess I would challenge the notion that Buddhism does not adapt, and Buddhist practices do not adapt to new contexts.

Wendy Hasenkamp (00:24:04): Oh, sure. Yeah, I didn't mean to suggest that. Yeah.

Amishi Jha (00:24:07): Right, but just as you see it move from — just following the historical trajectory of these practices from India and moving East — it's almost like we move so far East that, okay, now we're back to the West. And maybe California is as East as you can get, in some sense. But there's constantly an adaptation to the culture, the need of the new population that may be exposed to it. And I actually don't see it too far from that point of view.

Wendy Hasenkamp (00:24:37): Yeah. Yeah. I was thinking about — you started the conversation talking about your parents, and the practices that they have. And that feels like a very... it's embedded in a full

lifestyle, whereas these practices are more attention-focused and specific. So, just thinking about if there's different goals or frameworks there.

Amishi Jha (00:25:03): Yeah, and I think that's a totally fair question, right? And I could see how people see this as stripping any kind of cultural nuance... the kind of ethical dimensions are stripped away, the goals regarding why you practice are different. But I would probably kind of push back on every single one of those, in some sense. Because I don't think that we're offering practices stripped of a cultural container. I think that the cultural container just happens to be the one in which the participants are. And we're also not stripping it of an ethical point of view, it just happens to be the ethical framework of the participants, as they are. And I think that's an area of exploration that we need to consider more. It's not like, oh, there's nothing there, it's that it's in the lived experience and the orientation held by those that we engage with. So if you're talking to a firefighter regarding practicing, the commitment to service is so strong, the commitment to even self-sacrifice in the spirit of service, is so strong that that's going to come up. And the need for self-care as you're caring for your community is going to come up.

(00:26:17) So the ethical container is frankly never lost. It's not the same one that has to do with some of the traditional perspectives, but... And when I do talk to my family members regarding these practices, I think that those kind of topics come up of, what's the anchor? Why are people practicing now? And I actually think it leads to a lot of problems, frankly. If you think about taking this to the extreme of just downloading an app on your phone, following practices, no teacher, no community, no guidance other than just the guided practices that you receive. And then the expectation somehow that you might think that this is going to bring me balance, peace, bliss, joy, and everything's going to be great in my world again. I think there's a lot of danger, and a lot of concern regarding that misunderstanding of what these practices are. And that they are things that we definitely address when we have live trainers in the context that we offer these programs. I mean, I think it is important to acknowledge it's not the same container, but there's a container in which things are happening.

Wendy Hasenkamp (00:27:26): Yeah. And that's actually really skillful. Like, whatever population you are working with, you have to be sensitive to that cultural container.

Amishi Jha (00:27:34): Right, you do. Because, or else you're going to rub up against conflicting reasons why we engage in whatever we're doing.

(00:27:43) But I guess... I just want to highlight one other thing you said. I mean, to say something like this is — and I'm not saying that you mean this in any mean way — but just like, oh, this is just attention training. Right? And I get that a lot, I get that. I had a member of — a Lord in parliament, actually — say, "What you're teaching is simply attention training." And I was kind of like, "What do you mean by attention training?" Because in some sense, the capacity to be present in your life and receptive to what you're experiencing, they're all attention. The capacity to understand what motivates you. Your capacity to care for others and have compassion. These are all within the purview of attention.

(00:28:23) So, I mean, just attention training, it's not like we're training people to be robotic, mindless drones that just go and do stuff, we're really actually doing the exact opposite. But I guess my view of attention is much broader than what many people think.

Wendy Hasenkamp (00:28:39): Yeah. That's a really helpful nuance. Makes me think of maybe some misperceptions or some critiques that have come your way about your work with the military. What are people concerned about potentially, and how do you think about those issues?

Amishi Jha (00:28:53): Right. I think the biggest concern is that they're going to become, and I'm putting this in quotes, "better killers." Right? Because killing is on the table as a part of the repertoire of activities they can engage in. Though it's, I would say, there's a seriousness — when you have that capacity, at least from the point of view of those that are training soldiers — there's a seriousness with which that part of the job is considered. I mean, this is not... you don't take it lightly, if you actually are holding a gun. And I've really come to appreciate that.

(00:29:30) I mean, I had a lot of biases against the military. I knew nobody in the military before my first project. Never met anybody, never even had a friend or family member or colleague. And it's opened my eyes considerably, just to my own understanding of what this profession is, and what draws people to it, et cetera. And what I've been very surprised by, in some sense (just given this acknowledged bias I held), is the degree of thoughtfulness and heart that I see in these individuals, especially some of the leadership.

(00:30:04) And I think that, my view from the beginning has been... Just like in my own life, when I was checked out, and stress makes you more likely to be checked out, you're going to be on autopilot. You're more likely to... In my life it wasn't pulling a literal trigger of a gun, but it was shouting at my spouse when I was unhappy, or not responding because I just didn't hear something because I was so lost. It was my own way of not being present to my life. As soon as I developed this capacity to pay attention, and be present to what was unfolding, and be with difficulty instead of pushing it away or denying it, I had more tools to discern how to behave. And that was what I was interested in seeing, if we could provide training that would do the same.

(00:30:53) So, it is to provide more opportunities for things like de-escalation, negotiation, discernment. And that would be true for their professional life and their personal life. And that's frankly, what we hear from service members — is that, "I'm more able to make tough choices, because I'm considering what I'm doing. I'm not in a fog." And that felt very hopeful to me, especially as I started seeing leaders do the same thing, military leaders do the same thing.

Wendy Hasenkamp (00:31:23): It sounds like there's also a lot of potential for building resilience.

Amishi Jha (00:31:27): That's the main thing that we're interested in, yeah. This notion that resilience is not simply a capacity some have and some don't, right? That's sort of the way that we talk about it. It's like, your upbringing may make you resilient, or maybe the attitude you have, your mindset... That's probably all true, but you can actually train people to be more resilient. And in particular, from my point of view, be cognitively resilient. Because attention, working memory, cognitive control, those are the workhorse systems — not only for being able to make decisions and focus — but regulate your mood, deliberate decisions, planfully act, even have empathy and regard for other people. Those all require these same systems.

Wendy Hasenkamp (00:32:14): Yeah.

Amishi Jha (00:32:15): I mean, maybe just one more thing regarding the military itself, that has to do with what I've seen in military leaders. This... Mindful Magazine hosted this webinar with a three-star General. So he is the kind of the third in charge of the US Army. I know him because he accepted our very first project when he was a Colonel, so a decade ago. But the reason he accepted our project, after a year of me trying to search for somebody that would take our project — we had $2 million in hand from the DOD, but nobody to actually take our project, which I was kind of like, "Oh, wow, this is different. I don't know anybody in the military, how am I going to even talk to a service member, and then convince a leader?"

(00:32:56) But he took our project because they had just returned from Iraq, and they had all the tools that the Army was offering... And what he was realizing is that none of them were working. That people were still driving too fast, and drinking too much, and having domestic violence toward their spouses, and spending all their money. So all these things that we know happen when cognitive control is completely depleted, were happening. And there were no tools. And so it was almost the last resort, sort of an orientation. But what was cool about it is that he himself didn't just choose to give it to his soldiers and then disregard it; he decided to practice himself.

(00:33:36) And that made all the difference. Because what now started happening is that he was experiencing the benefits of the practice himself. And then he went on to become a one-star, two-star, and now three-star General, but when he was, last year when... this is General Piatt. So, when General Piatt was a two-star General, he was deployed to Iraq. And this was the first time in my life I'd ever known anybody to be deployed. You know, I'd worked with all these service members, but I never personally knew somebody who was going to be deployed. And so I just asked him if he could consider keeping this tool in his tool kit while he was deployed, and whatever I could do to support him, I was going to be there. And every now and then I'd get a note from him like, "practiced this morning" or... and it would be sort of incredible what he would say the benefit was.

(00:34:24) So he was literally in Iraq as the Head of the US Land Force to build peace in that country. There were all these factions that were kind of hanging together because they had a common enemy called ISIS, but now that ISIS had been "defeated," all these factions were fighting against each other. And his job was to get them to talk to each other, and listen to each other. And he said that the mindfulness practice that he had been engaging in was the core reason he was able to do that. Because he could regulate his own mood, he could actually open himself up, do perspective taking, have compassion, and stay focused in the middle of very dysregulating experiences where literally he was getting verbally attacked by these other leaders, because the Americans were to blame. He kept his head and was able to actually bring people together. That gave me a very strong sense of hope — that if we can get this not only to soldiers at all levels, but to leadership, military leadership, civilian leadership, there may be a chance that peace is possible, it's not just this fluffy idea.

Wendy Hasenkamp (00:35:30): Yeah. That's really powerful. It's great to hear how he was able to use those practices. So we were talking a bit earlier about the psychological aspects of stress, and our subjective experience of stress, and the relationship to these cognitive functions. You spoke a bit about mind-wandering, and I think that's a big part of that. Do you want to say more about your work in the area of mind-wandering?

Amishi Jha (00:35:53): Yes, absolutely. And I think... Again, kind of related to our direct experience, that when we are feeling overwhelmed, typically it's not because there's a giant mammal after us, hunting us. We're feeling overwhelmed because of the mental content that we generate in our own minds. And that can be... whether that's feeling like you're going to be evaluated, or something really important is on the line, or there's no way you're going to get things done in time. So those thoughts are actually the drivers of the emotion that we experience, and that entire cascade is what emerges, or kind of composes itself into the experience of stress.

(00:36:40) And in some sense, I would say mind-wandering, the way I think about it is, the dark matter of cognition. It is constantly having an impact on our cognitive functioning, but we're not privy to it, most of us are not privy to it. And my experience offering mindfulness training, and really offering more around the science of mindfulness training, is that understanding — that the mind has a mind of its own — is such a key insight for people. They don't even really get it. It's like, "Oh wow, I have a mind and it's doing all these things," and, "Oh, that's true! It is hijacking me away from what I'm trying to get done."

(00:37:19) So that aspect of the relationship between focusing and having your cognitive resources devoted to the task at hand, and then whatever energetic pull there is away from, that has been a very interesting topic for me. And one that we're pursuing in my lab, even outside of the context of mindfulness training, just to understand its nature. And there's been so much great work done on it by people like Jonathan Smallwood, and Schooler, and Kalina Christoff, so many great researchers that are exploring this.

(00:37:51) My interest has been around understanding the impact of mind-wandering — particularly because of the kind of groups that I work with — when you have to sustain your attention over some period of time. And that sustaining could be, again, for a firefighter, watchstanding when you're dealing with the forest fire, or on patrol as a police officer or as a service member, or monitoring equipment as an ICU nurse. I mean, there's so many contexts in which the demand is low, meaning the chances of something happening are pretty low, but if you don't have your attention present for the entirety of time, the consequences are very high. I mean, I think about this every time I pass through a security gate at the airport. It's like the chance of these guys finding a weapon in one of these is very low, but please don't mind-wander!

(00:38:41) So what we've been looking at is things like, manipulating the level of demand of a task. So it might be a working memory task. You ask people to remember some kind of complex stimulus, let's say a face or multiple faces. So you've got an easy version of the task where you just have to remember one face, and then some seconds pass and you get a test face and you say, "Oh yeah, that was one of the faces I was asked to remember." Or you give them a harder task, which is remember two or three faces, and same thing — small delay and then you get a test face.

(00:39:09) And I wanted to have this experiment go on for a long period of time, so maybe 20 minutes let's say, which is a pretty long period of time to have to sustain your focus. And one of the things that we found that I thought was very interesting is that just overall, mind-wandering increases over time. The more time you spend engaging in a task, the more you mind-wander.

Wendy Hasenkamp (00:39:29): How do you know if they're mind-wandering?

Amishi Jha (00:39:30): Right. So, good question. One way we do that is by asking them. Just, check in to your phenomenological experience, are you on-task or are you off-task? Even give us the gradations of how on-task or off-task you are. That's one way. We can look at performance errors, did they make more mistakes? We can look at something called response time variability, of how variable they are when they press the button to the response. So there's metrics we can use that are both subjective and objective to track that.

(00:40:03) But what was interesting is that early on in the task, it's a little bit counterintuitive. When the demands are high, we don't wander as much as when the demands are less. Maybe actually that part isn't counterintuitive. You know, if I'm asking you to just think very hard, you're fully engaged, there's no space to mind wander. But now if I ease up, you're like, "This is kind of boring," all this other internal chatter starts happening, because all my resources don't need to go toward the task at hand.

(00:40:29) So initially in the task, the high load conditions tend to have less mind-wandering than the low load conditions. But then as we go along through this 20 minute experiment, the pattern sort of flips — where people are mind-wandering less during the low load and mind-wandering more during the high load. And it's, I think... My brilliant scientific summary is like, they just kind of give up. It's like, it's so hard to remember and they're so checked out by the end that they're not-

Wendy Hasenkamp (00:40:58): Yeah. They're just depleted.

Amishi Jha (00:40:59): But I think just understanding that that's the nature of our mind can give us some way to deal with our, any kind of task that we're doing, right? So even if you're listening to a lecture, or to this podcast — take a pause, go walk around and get your mind fresh again, and then re-engage. Because the longer you try to sustain your attention, the more compromised it may become.

(00:41:20) But I think there's something really cool to talk about. And Wendy, I mean, think of your study that you did back in... gosh, what year was it now? 2012?

Wendy Hasenkamp (00:41:29): 2012, yeah.

Amishi Jha (00:41:29): Yeah, that seminal Hasenkamp study.

Wendy Hasenkamp (00:41:31): Ancient history! [laughter]

Amishi Jha (00:41:33): No, but still so relevant. You know, even in an undergrad course I teach, this is a study that connects the dots between the nature of mind-wandering and why mindfulness training can be helpful. Right? So just — I mean, even though it's your work, just to say it back to you — that essentially, noting that through the course of a mindfulness practice we can observe the transitioning nature of brain dynamics that support various aspects of what the practice entails. So, focusing on the breath, having an attention network that's activated. At some point noticing, "Oh, my mind wandered," having a salience network be activated. And then kind of in that sweet spot between focusing and then noticing is when the mind-wandering occurred, where we see the default mode network active.

(00:42:18) To me that was such a nicely done study, and so helpful to see, "Ah, okay. So if you're book-ending the experience of mind-wandering with attentional engagement that's focused, and this noticing capacity... Well, if you do this over and over again, over weeks, you're going to strengthen those systems." And in fact, that's what the training research is showing us, is that there's stronger activation and stronger basically brain connectivity in these attention networks, and stronger ability to even quiet that default mode when we don't want to be mind-wandering.

Wendy Hasenkamp (00:42:54): Yeah. I think it's really important to understand mind-wandering. It's usually one of the first things that we become aware of when you start practicing, because it's so prevalent. But as you said, normally, you don't even realize. So, clearly, reducing mind-wandering can be important for when you need to stay focused for a certain task. And then there's also... in some ways I think mind-wandering is a very large bucket, and so there's also people who talk about creativity and other sides of mind wandering that might be useful and productive. And so that points to, what is the function of mind-wandering? Why do you think it happens in the first place so much?

Amishi Jha (00:43:33): Right. But you'd think, there's got to be a reason. I mean, if so much of our brain's metabolic resources are being devoted to this thing that happens, what? 25 to 50% of our waking moments, there's got to be some reason for it. But there's a whole line of thinking now on why mind-wandering developed as a capacity. I mean, there's the first pass look at it, which is like, well, you've got to plan, and you've got to reflect. And if you can't do that, you're out of luck. So mental time travel is a very powerful thing our brain does, we need to be able to do that, mind-wandering gives us that kind of luxury.

Wendy Hasenkamp (00:44:03): And mental time travel, meaning when we mind-wander, it tends to be we're moving into the future or the past.

Amishi Jha (00:44:08): Exactly. I mean, I always call it fast-forward or rewind, versus keeping the button on play. That's sort of my shorthand of it. But there's probably other reasons that mind-wandering is happening that are more fundamental to our ability to remember and learn. And I think this is the exciting next threshold of knowledge regarding mind-wandering. And I think that some of these ideas that — well, maybe these random snippets of thoughts that just appear in your mind out of nowhere, are the brain sort of replaying past experiences, as a move toward better episodic encoding. Meaning reliving the moments we've experienced. Episodic memory is just our memory for our lived episodes of our life.

(00:44:55) That playing these out, in some sense, helps us parse, and de-conflate or de-confuse ourselves of how what I just experienced is different than the last time I experienced something similar. And that in some sense, every time you replay a memory, it's going to be slightly different. And so the multiple replayings of that memory allow all the stuff that's different across the memories to kind of wash out, and just the thing that's sort of continually reappearing to be the thing that's preserved.

Wendy Hasenkamp (00:45:27): That's an interesting idea...

Amishi Jha (00:45:28): Yeah. So that then, all of a sudden then when you're practicing and your mind wanders, you're like, "Oh, there's my mind doing its thing to try to episodically encode. Okay, back to the breath." I think these are very exciting ideas to start thinking about with regard to the purpose of mind-wandering.

(00:45:43) And I would say the larger bucket, and maybe this is just semantics, but the larger bucket for me is something I would describe as others have, as spontaneous thought. It's just this thought pump. The brain is a thought pump, it pumps out these things. We don't really understand fully yet, though we have some ideas, why it's happening.

(00:46:01) And the specific context that we just talked about — that spontaneous thought is occurring, but you're trying to actually keep the mind focused — is when we run into trouble. And that's when we'd call it task unrelated thought. Spontaneous, but it's not tied to what I'm trying to do, so it's a nuisance. And it does end up being a nuisance. When we mind-wander during a task, we do perform more poorly. We do actually even get negative mood tied to that. And our capacity to perceive what's in front of us gets diminished when we mind-wander. So you do have this thing called perceptual decoupling.

(00:46:36) All those are true, but what you said is also true — that spontaneous thought, I mean, there's got to be a reason for it, and it must not be all bad. And I think that's absolutely important to acknowledge. Because from my point of view, having the time in our day to allow the free flow of spontaneous thought is a lifeline. We need to do that. And I actually think you might say, "Okay, well, when I go for a walk, I let my mind wander. Even when I'm going for a run, or just traveling in a car as a passenger, or even driving when it's an easy drive, the mind is just kind of going all over the place. And what's the big deal? Can't I just do that?" And I would say, not only can you do that, but you should do that. You should not squander those moments where your mind is just roaming free. And those can be extremely generative for creativity, for problem-solving, for visioning, for mood boosting. I mean, these are all beneficial things. So just to not give...To say, mind-wandering may get a bad rap, but spontaneous thoughts certainly should not. Because it's only problematic when it's competing with something you're trying to do.

(00:47:40) And just to mention one thing, because I think now we're at the point where we don't allow ourselves to have spontaneous thought. I mean, I think of myself — in normal circumstances, if I were going to go somewhere like a coffee shop to get my coffee, while I'm standing in line, am I letting my

mind just kind of go where it wants? Even the walk from the car to the coffee shop, I probably already have my phone in my hand, I'm trying to see, okay what emails can I deal with while I'm just standing in line? I'm not going to let a minute go wasted, because everything is going to be task-focused, right? And the task is either going to be something I've decided to do, like answering my email, or something that is actually imposed upon me through my engagement with social media apps. Right? All of a sudden my Facebook feed is dictating my task, which is to read whatever my friends have posted, or some new story or whatever.

Wendy Hasenkamp (00:48:24): Yeah. It's like you're either catching up on tasks or you're consuming content, which is, there's just so much now.

Amishi Jha (00:48:30): Which is also a task, frankly.

Wendy Hasenkamp (00:48:32): Yeah. Yeah.

Amishi Jha (00:48:33): You know, it's funny. I just, I turned off the notifications on my social media, and it's been such a freedom. It's like, I don't know who liked what I posted, and I don't even know what kind of engagement there is with it! Or else every time I opened my phone up, it was like I had a bunch of tasks. I had to see like, okay, what are all these little thumbs up I received, and from whom, and for what reason, and what are they saying? And it was like, oh, do I need to make more work for myself?

Wendy Hasenkamp (00:48:56): And those systems are actually designed that way, right? To continually grab our attention so that we keep engaging with it.

Amishi Jha (00:49:03): Not just designed by an engineer or two, but hundreds and hundreds of engineering teams that have perfected how to keep us engaged. And I think that it's just important to know that, that every time we do that, we are missing out on our chance to have spontaneous thoughts. So to just be aware. Maybe decide, I'm only going to do this for a couple minutes or... It's interesting to see how my kids have taken on their use of social media. They've used all these apps to cut the time that they can spend. So it's like, oh, I only have one minute left, I've got to use it! So, they're constraining by these external pressures. What I'm hoping we can do by growing our own capacity for mindfulness is, do it in the moment. You don't need to have external things. But I think that the social media and technology engagement is particularly problematic, because it's not allowing us to have as much white space, as much spontaneous thought.

(00:49:55) – *musical interlude* –

Wendy Hasenkamp (00:50:12): We're recording this about two months into the COVID pandemic. And you teach classes at the University of Miami, and you're involved with work in a lot of these populations. What's been your experience and take-homes, or the relevance of these practices during COVID?

Amishi Jha (00:50:30): Yeah. I mean, yeah, we're both sequestered in our homes, it's been a couple months now, and I'll just start out by saying that — they're a lifeline. I don't want to overuse that, but mindfulness practice, contemplative practice, is really the only thing that I think can be helpful in these circumstances, when there is so much uncertainty and fear overpowering our minds.

(00:50:57) And I heard it from my students, the class I was teaching this semester was called Mindfulness, Attention, and the Brain. And so in addition to learning about the brain science of mindfulness, they learned mindfulness practices. My dear colleague, Scott Rogers, would come to class — he's the Director of the Mindfulness in Law Program, so he's used to teaching law students — but

he'd come in once a week and teach my students, just a primer for about half an hour. So they were alongside learning about the science, learning about the practices. And then already seeing transformation in them — the rigor with which they're evaluating studies was changing... It's funny because they all said, "Oh, look at that, I'm mind-wandering more." And then kind of questioning themselves, "I don't think I'm mind-wandering more, I think I'm noticing my mind wandering more." And I'm like, "Yes! You're getting the insight. You're getting it."

(00:51:43) So, anyway, so now we had our spring break and then COVID quarantine happened, and we started having our classes online. And it was so touching and compelling to me that they spontaneously reported the benefit of the practice in these moments. So much so, that some of them really started wanting their parents to start practicing. It's like, "Mom, I got this tool. It's helpful. Just try it." And I thought that was so useful, because the intention for the course is, of course, is scholarly enterprise, but the personal benefits I think are what make it lifelong and powerful for people.

(00:52:20) So I think during this COVID time, there's two things. One is that we will experience cognitive fog. We are in a high stress protracted period of time, in the same way soldiers are, or firefighters are during hurricane season (in Miami at least). And we should acknowledge that, that this is happening to us. And that mindfulness training, just like it was for the firefighters and soldiers, if we begin practicing now, it may help keep us steady in these moments.

(00:52:49) But to be realistic about it. A lot of times I get emails or requests from reporters or media people saying, "Can you give us tips for being positive and crushing it during COVID?" I'm kind of like, "Ah... no. Why are you trying to crush it during COVID?" And they, of course, see mindfulness training as a way to crush it and get positive. And I really want to caution them and say, "No, no, no, no, we want to stay steady. We just don't want to degrade." And by the way, all of our research suggests that attempting to contrive positive mood under high stress circumstances is a bad idea.

(00:53:31) I'm not saying not to be grateful, or look for silver linings. But to actively try to make mood positive, takes so much working memory capacity and attention to reappraise, reframe situations — when you don't have a lot of it to give, using it for that purpose is a bad idea.

Wendy Hasenkamp (00:53:53): That's interesting. It makes me think of, there seems to be such an important role of acknowledging what is, in the practice of mindfulness. So, becoming aware of even difficult or negative emotions, and then similar to what you were just saying, not pushing them away or trying to create something different, but allowing them to be there. And then what you just said, it makes me think — maybe that's part of why there's such a relief in doing that, is you're actually freeing up your processing. You know, you're not cognitively trying to spend all this energy suppressing, or creating a different storyline, but you're acknowledging what's there.

Amishi Jha (00:54:29): Exactly. You're allowing it to come and go and you're... I always think of it as befriending this experience. Honoring and befriending the experience we're having. So when a very strong... You know, I was mentioning to you, I had a very sad loss in my family, my uncle passed away from COVID. And to not try to see it in any way other than just sad. Just sad. And really sad because we can't even celebrate his life together, or say goodbye in any formal way. But to hold that, to watch it. Watch its impact on me, in almost a loving way, that this is a real emotion I'm having, and then it will pass. As everything does.

(00:55:14) In some sense, I would say that part of the practice is a form of distress tolerance. Again, because our mind — whether these emotions or thoughts, memories, come up spontaneously or are particularly activated by our circumstances — we can get very hijacked, we can get very hijacked by

them. But if we train the mind, especially with something like an open monitoring practice, to allow it to appear and just like a cloud pass away without trying to hold on to anything, we stay more steady as those difficult emotions come and go. And that steadiness is, to me, more powerful and more beneficial than feeling happy for a few moments. Because it's always with me. And I can trust myself in some ways more, because I know that no matter how difficult, I'm here for it. I'm here with myself, and I will be able to handle it in some ways, with my full capacity to pay attention to it.

Wendy Hasenkamp (00:56:18): Yeah, that's great. I think that's a really valuable perspective. So the last thing I want to chat with you about is, I think you're really one of the first researchers in this field who came up and was able to make a large portion of your career about studying contemplative practices. So, I'm curious of your perspective of how the field has evolved. You've been kind of in it since the beginning, like you said, you clued into it in the very early days, and it's been almost 20 years now. So just curious your reflections on the evolution of the field, and maybe where it should be going next.

Amishi Jha (00:57:00): Yeah, it's true. I feel like I got in on the ground floor before it was a field, before we had any idea that it could be a thing, a field, right? To even call it the field of contemplative science or contemplative neuroscience, was not even really in my mind. Just wanted to keep going and studying these things in my lab. But what has been very interesting to me... So this class that I was just describing — teaching undergrads about Mindfulness, Attention, and the Brain — in the early days, because, again, as I started pivoting my research program, I wanted to pivot my teaching to align with the research that I was doing and what was occupying my scholarly life. And so I taught a course at the University of Pennsylvania, within the first couple of years of beginning this work, on the Science of Mindfulness. And the reality was, there was no science of mindfulness! There were no studies that I could really point to.

(00:57:53) So what I ended up doing is I would anchor — we again, had practice as part of it — but I would anchor the topics around what was part of my repertoire of interests as it related to mindfulness. So, what are the brain networks tied to focus? And what is mind-wandering? And regarding mood regulation, et cetera. And then what we would do is study core topics in those areas, and at the end of the semester, they'd have to come up with their own research project, of how they were going to use this basic knowledge to generate a new grant idea, and study mindfulness in some way. And it was so cool to see what they would come up with.

Wendy Hasenkamp (00:58:30): That's a great way to teach it.

Amishi Jha (00:58:30): Yeah, yeah. Because I was like, there is no field I can point to, so let's make one. And in some sense, it truly did make one. And this is where I would say the Mind & Life Institute was such a great partner in this, and actually allowed the field to develop, including some of those early ideas those students had. Some of those students went on to become graduate students, and other people in my lab would pick those ideas up, and apply for those early pilot grants that allowed us to conduct the research that was proposed. And then publish that research so that we could start having a field.

(00:59:03) And to just fast-forward from 2003-4, when those first classes were being offered, to today — I mean, there is so much that I can offer in these courses, with regard to the course pack of articles, that it's like... I don't know, I'm a kid in a candy store of what's out there. But I still have them propose a grant, because I still think we are at early days.

(00:59:26) But one of the things I was just going to say is that, I mentioned that in the beginning when I was starting this work, it was kind of lonely. I mean, other than the Mind & Life community, which was the only place I could go to be "out" about the fact that I was studying these things... And the Summer

Institute was particularly helpful because then I could stay up all night with my new friends and my new collaborators. And it just sort of shifted my orientation from feeling closeted to deciding that in whatever way I can, as my career evolves, I'm going to make this more front and center. And I'm going to not let it be something that is secondary to my work, but is the center of my work. Not having any idea that mindfulness would have a cultural explosion the way it has. It was a personal commitment I had made because of the continuing benefits that I was seeing.

(01:00:18) When I moved from Penn to the University of Miami, where I'm now, that was one of the first things I said when I met with the President of the University. I said, "I would like to start a mindfulness initiative on campus." And we did. We started something called the UMindfulness... you know, the University of Miami is called The U, and so we started the UMindfulness Initiative. It was Scott Rogers and myself. And it has been so interesting. We've had so many speakers come through. And now, the HR department offers mindfulness. I'm not even involved in what is being offered on campus. So it's been so interesting to see how much it's had an impact on our, not just the university context, but really the broader society.

Wendy Hasenkamp (01:00:58): Yeah. And I know you've been thinking a lot recently about gender and racial diversity issues. Did you want to say anything about that?

Amishi Jha (01:01:06): Yeah, I mean, I think now, because we are at the point where it is a field — a field that it's in infancy, but a field — I had a lot of hope that... What we know happens in traditional academia — that female-led teams don't get cited as often in research publications, that as we move up the ranks from assistant to associate to full professor, there are fewer and fewer women that rise up the ranks, that leadership positions within the university and scholarly enterprises are less female-led. I just had so much hope, I would say I still have hope, but with a little grain of reality thrown in there. My hope was that because it's so new — it didn't exist, right? 2003, it didn't exist — because it's so new and because the content of what we are studying is about self-awareness, meta-awareness, reflection, compassion, that these concepts would be held in our engagement in the work itself.

(01:02:06) And I would say, again, the Mind & Life Institute set that tone in the way that it conducts its work and its support of the field. But old habits die hard. And I would say for a lot of the academics, though we are very excited about contemplative science as a field, the baggage and the habits of our typical scholarly work are going to be hard to shake. And that is a source of concern for me, a lot of concern for me. Because I want my students to have a chance, I want the female scientists in my lab to have every opportunity to be excellent, and not be discounted because of their gender, or their race, or any other aspect, sexual orientation. Any other aspect of their person.

(01:02:51) And I just still want to hold out hope that a field of contemplative science will be able to at least be a champion of that idea, of more equality and inclusion. And be a role model for other fields, so that we, as we move forward, we're exemplifying that in the way we conduct ourselves. That's my hope.

Wendy Hasenkamp (01:03:11): That's great. Well, I want to thank you so much for all of your work in this field. You've been a real trailblazer, and you've also played such a role in communicating this work to the public. So, I really appreciate all that you've brought. And thank you for spending your time with us today.

Amishi Jha (01:03:27): Oh, thank you so much, Wendy. This is such a joy, and always great to spend time with you. Thank you.

Outro – Wendy Hasenkamp (01:03:38): *This episode was edited and produced by me and Phil Walker. Music on the show is from Blue Dot Sessions and Universal. Show notes and resources for this and other episodes can be found at podcast.mindandlife.org. If you enjoyed this episode, please rate and review us on iTunes, and share it with a friend. If something in this conversation sparked insight for you, we'd love to know about it. You can send an email or a voice memo to podcast@mindandlife.org. Mind & Life is a production of the Mind & Life Institute. Visit us at mindandlife.org, where you can learn more about how we bridge science and contemplative wisdom to foster insight and inspire action towards flourishing. There, you can also support our work, including this podcast.*