Mind & Life Podcast Transcript
Linda Carlson – Mindfulness and Cancer

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Opening Quote – Linda Carlson (00:00:04): *Psychologically, the key indicators of going through a cancer experience, or any diagnosis of life-threatening illness... [first] there's the mortality threat, to recognize that this has the potential to foreshorten your life. The second big piece is control. We go through our lives with the illusion that we have control over what happens to us. And so they recognize they have less control than they thought. So people need to learn to regulate those emotions—or to accept them. So acceptance-based approaches are really the answer. It's as simple as that. No one wants to have cancer, no one wants to feel this way, but you do. That's where you are. And so that's where the kindness comes in, the self-compassion.*

Intro – Wendy Hasenkamp (00:00:45): Welcome to Mind & Life. I'm Wendy Hasenkamp. Today, I'm speaking with health psychologist and contemplative researcher Linda Carlson. Linda is professor and chair of Psychosocial Oncology at the University of Calgary, and she has been an absolute pioneer in bringing mindfulness and contemplative practice into the world of cancer. As we'll hear, she conducted the first ever trials of mindfulness for cancer patients over 20 years ago, and she's been studying it in various ways ever since.

(00:01:20) In our conversation, we talk about the impressive results she's seen from this intervention, which is now called Mindfulness-Based Cancer Recovery, on things like stress and anxiety, quality of life, immune function, cortisol, telomeres, and more. We get into all of this in the show, and we also talk about some of the more subtle, maybe deeper aspects of the cancer experience, like acceptance in the face of suffering, reevaluating your identity, touching into boundlessness, living well versus living long, and a lot more. And in addition to her significant research and clinical work, Linda has also been instrumental in integrating mindfulness into cancer treatment systemically at an international level, and she's also been a key player in forming the new academic society for contemplative research.

(00:02:16) Cancer is an experience that touches so many of us, either personally or through loved ones, and it's full of challenges. Linda's work offers a path for living well, both with cancer and beyond it. As I think will become clear, Linda is a force, and I so appreciate all the effort and heart that she puts into her work to improve the lives of so many. There's lots of resources in the show notes, both about her research and also about the mindfulness program that she's developed for cancer patients and their support network. That's now available online and through an app. So please check that out and maybe share this episode with people you know who might benefit. Okay, I'm really happy to share with you today, Linda Carlson.

Wendy Hasenkamp (00:03:09): Well, it's my great pleasure to welcome Linda Carlson to the show today. Thanks for being here, Linda.

Linda Carlson (00:03:14): I'm really excited about it.

Wendy Hasenkamp (00:03:16): I always love to start with a little background information about the guest, and understanding how you got where you are. So could you share a little bit of your path into psychology and also meditation and how those things came together?

Linda Carlson (00:03:28): Sure, sure. I mean, the question is how far back should I go on that? *[laughter]*

Wendy Hasenkamp (00:03:31): However far you want.

Linda Carlson (00:03:33): Well, I grew up in Calgary and Canada, so I'm a Canadian and have spent my whole career here. And I guess in undergrad I was drawn to psychology, so ended up doing a major in psychology generally, and realized that I wanted to go into clinical at some point. The other passion I had at that time was just to "get out of dodge." I wanted to travel. I was really excited about seeing the world, learning about new cultures, that kind of thing. And so after I finished undergrad, I took a year off and I traveled around, the typical backpacking around Europe sort of thing.

(00:04:04) And as I was doing that, I had lots of experiences that were kind of I guess mind-expanding, meeting people from different cultures and different traditions. And I worked in Israel for a few months on a farm, and I started reading more spiritual Buddhist-type things. And I remember one of the first books I read was *The Tibetan Book of Living and Dying*. That was popular at the time. So this is, we're going back like 30 years, a little bit more actually. And so that was just the book I picked up and I started reading it and was quite fascinated.

(00:04:34) And before I had left on my year of traveling, I had applied to a number of grad schools in clinical psychology, but really didn't know where I was going with it. I was really at that point... You look back and it's like, "Oh, it looks so planned out. The person knew what they wanted to do," but I had an interest in forensic psychology and social psychology. Health psychology really was not even on my radar. But I ended up choosing McGill University, not because of the professor or the program, but because I wanted to live in Montreal. I thought that would be fun. It was the most interesting place that I could think of living in Canada.

(00:05:08) So after my year of travel, I landed in Montreal, and this was 1992, to start a clinical psychology PhD. And they're very small classes, and there was, I think, eight people in my class. And it just so happened, and this is so serendipitous, that one of my classmates was a fellow called Neil, older than the rest of us—we were early 20s, I don't know, he probably was only in his early 30s, but he seemed very old to me—and had just come from seven years in Thailand studying as a Thai forest monk with Ajahn Chah in that lineage in vipassana. And he was ordained, shaved head, the robes, the whole thing. For some reason, he had decided to come back to civilization and get a PhD in clinical psychology at McGill.

(00:05:48) So there he was, right? And I had a burgeoning interest in meditation, and he said, "Well, I'm happy to teach you." And so we started a weekly sangha really throughout grad school. It was amazing. And so also in that cohort, well, not in my class, but a few years ahead, was Kirk Brown. (I don't know if you know Kirk.) So Kirk and I sat with Neil, and there was a number of other students as well. And so we just started sitting in the vipassana tradition every week while I was in grad school, for six years I was

there. And at the same time, I started a yoga practice. So it was a hatha yoga practice, just came upon a teacher who was amazing and very contemplative and was doing that personally.

(00:06:31) And Kirk was a bit more immersed in this world than I was, and he knew Jon Kabat-Zinn, or knew of him, and invited him to Montreal to McGill in 1995. So I started grad school in 1992. We were sitting. Kirk invited Jon to come up. He gave a talk. I like to say it was the first time I ate a raisin mindfully, and I became familiar with MBSR then through that encounter with Jon.

(00:06:55) Now, my PhD was in mind-body, not medicine I suppose, but mind-body research. I was looking at the effects of hormones on memory in pre and post-menopausal women and Alzheimer's disease patients, is what I ended up doing, so a psychoneuroimmunology framework. So I was learning a lot about mind-body connection biologically that way, and at the same time deepening my personal practice with mindfulness, with meditation, learning about MBSR. And then at the end of my PhD (you do a year long internship), I decided to come back to Calgary and ended up in a rotation at the cancer center. And it was just one of... you know, I also did forensics, I did inpatient psychiatry. But I ended up at the cancer center two days a week.

(00:07:35) And that's where I met Michael Speca, who has been my partner in crime all these years. He's a psychologist who worked more clinically than research, with people who have cancer. And he was also a meditation practitioner and a yogi, and actually had his first degree in dance, dance and movement therapy. And so him, and there was a couple of other people who were into yoga who also worked at the cancer center. And so I arrived for a year as a internship student and they said, "We're thinking about starting a meditation group and a yoga group for the patients." They said, "We all do these practices. We think they're really beneficial. Why aren't we offering it to our patients?" And I said, "Well, there's this thing called MBSR... There's this guy called Jon Kabat-Zinn." This was 1998, 1997 actually when I started there, so it was all very new. And I said, "We should take what he's doing and see if we can adapt it for the people we work with." And they said, "Great idea."

(00:08:27) And so we created this program. It was kind of a mishmash, really, we just called it Mindfulness For Cancer or something like that. And that's when we did our first, very small clinical trial. It was a waitlist controlled trial. We took anybody who would sign up, so there was 89 patients. They could be on, off treatment, any type of cancer, any stage of disease. It was a waitlist RCT, so it was a pretty strong design. And so I kind of ran that study. I finished my internship year, and I applied for a postdoctoral fellowship and I got funding to do the research in mindfulness for people with cancer.

(00:08:59) And so with that first clinical trial, we saw really, really amazing results. The effect sizes were huge. We were looking at stress and mood disturbance, anxiety, depression, confusion, fatigue. We used the Profile of Mood States, which has these six subscales, and then a Symptoms of Stress Inventory with eight subscales, looking at physical manifestations of stress, habitual behaviors, muscle tension, all this stuff. Huge effects. Really very impressive. And I went, "Wow, I think we're onto something here." So it turned out to be the first paper ever of a mindfulness-based intervention for people with cancer.

(00:09:37) And so Michael and I went down and we did some training with Jon and Saki [Santorelli] when they did those Omega Institutes and whatnot. There wasn't a formal training institute the way there is now for teaching MBSR. So we did what we could in terms of training in the MBSR model, and then we really just launched our program as a clinical service. And because we're in a public health system, we were able to get it as part of the usual offerings through our psychosocial resources program. So it's been offered clinically for patients since 1998 without stop. And Michael and I have

been two of the instructors, and we've trained other people through the years, but he's retired now and I'm still doing it.

Wendy Hasenkamp (00:10:14): Wow. Yeah, what an amazing trajectory. I love that it started even in grad school, you were at this great confluence of interest where you landed.

Linda Carlson (00:10:22): Yeah, and it's always been my belief that you just maintain openness to things. You put it out there like, "This is what I'm hoping will come my way." I've always thought, oh, I'd like to study X. I'll just keep my feelers out. And somebody will come along, a student or a colleague who's like, "Oh, I have the means or the expertise. Let's do it," and so off we go. And so that's kind of how my whole career has progressed, at least in this area.

Wendy Hasenkamp (00:10:49): Fantastic. I wanted to get into a little bit... As you said, you've been studying this for over 20 years, so you've had a lot of trials and found pretty incredible results. And I know one of the primary outcomes that you often look at is stress and symptoms of stress in cancer patients. And so, can you talk a little bit about what you understand now about the mechanisms of how these practices can help reduce stress for cancer patients, chronic illness, and ostensibly anybody?

Linda Carlson (00:11:18): Sure. And I think to understand that you need to take a step back and put yourself in the shoes of someone going through that experience. And so what we know psychologically, the key indicators of going through a cancer experience, or any diagnosis of life-threatening illness, [first] there's the mortality threat, like the existential issues. You recognize that this may not kill you now, but it has the potential to foreshorten your life. So that makes people look more closely at all those existential issues, meaning and purpose in life. What will it mean for my family, for my relationships? Looking back, if they've lived the life they wanted. Are there regrets? So the whole existential piece is front and center. So that's one big piece.

(00:12:00) The second big piece is control. So we go through our lives with the illusion that we have control over what happens to us. I mean, it's illusory, but most people aren't challenged until something like that happens. And so then people realize they really don't have as much control over their destiny, as it were, as they might've thought. And that's very threatening. We like to feel like we can control our outcomes and control what happens to us. And so they recognize they have less control than they thought—around how their cancer is going to progress, around what the rest of their life is going to look like.

(00:12:29) And part and parcel with that is uncertainty and lack of predictability and routine. Because all of a sudden, the doctors can't tell you. Cancer is one of those illnesses where there's probabilities, but there's no certainties. They don't know what kind of treatment they might have. They don't know how they might respond. They don't know if it might come back, or when or how. And so living with uncertainty, again uncontrollability, makes people very uncomfortable. And so those are the psychological features.

(00:12:56) And so then there's also the whole physical manifestations of stress that we're well aware of in the world of health psychology and psychoneuroimmunology. And so your HPA axis, your fight or flight response gets activated. You've got things like increased heart rate, blood pressure, cortisol levels. And we now understand that it's not just our nervous system, it's our immune system. It's our endocrine systems. It's our gut axis too. They're all intertwined. You can never separate those things. And to simplify it, I often say, "Every state of mind has a state of body." We don't have a single thought that doesn't manifest itself physiologically in some way or another.

(00:13:37) Some people find that terrifying. And there's a whole... gosh, a whole mythology, there's a whole school of thought that, oh, stress caused my cancer. And so I'm separating that from lifestyle, because we know that lifestyle factors like exercise, nutrition, sleep, smoking, those are directly causally related to cancer. But then there's this whole idea that, oh, the way that I think is affecting my physiology, which is making me get cancer. That's too simplistic in my view. I mean, even the cancer biologists don't understand what causes cancer and how all these factors come together.

(00:14:12) And so the way I like to think about it is, it could be a risk factor. In the Mindfulness-Based Stress Reduction paradigm, we talk about this model of stress—reacting versus responding. And the downward spiral where, if we don't handle these repeated threats physiologically, where we mount a fight or flight response, but we aren't able to deactivate it, and so one builds on the next, on the next. That's where you get your chronic high blood pressure, your arrhythmias, your susceptibility to... I mean, often coping that happens is maladaptive—drugs, alcohol, whatever it is. Or we try and suppress emotions, but we have this chronically hyperaroused nervous system. So that does cause physiological wear and tear, and it might increase susceptibilities where people are vulnerable. And the vulnerabilities can be environmental, biological, hereditary. So I think it's one piece in the puzzle that may increase risk. But the research on stress and risk for cancer is unclear. Some studies show it does increase risk and others not, but it's so complex.

(00:15:16) One thing we do understand though, is that untreated depression, for example, the strongest results are with depression, if it remains untreated after a diagnosis, it does worsen outcome.

Wendy Hasenkamp (00:15:28): In cancer, cancer outcomes?

Linda Carlson (00:15:30): Yeah. It's linked to higher mortality. So people who have untreated depression over a long period of time have a higher risk of mortality once diagnosed with cancer. So it is important to treat these things, but it's complex.

(00:15:43) And so the way I like to present it to people with cancer is that we don't know why you got cancer. We'll never potentially know why, but we know where we are now. And so coming to that place of acceptance and then looking, what can I do? What do I have control over? Where are areas that I can change my life moving forward, not only to improve maybe my outcomes and my survival, but to improve my quality of life? Many people with cancer say, "It's much more important to me that I live well than I live long."

Wendy Hasenkamp (00:16:12): Yes, absolutely. So in dealing with all of that uncertainty and, as you said, all the existential stress, how have you seen that mindfulness, or how do you conceptualize mindfulness as being able to help people come to terms with those situations?

Linda Carlson (00:16:31): Sure. I mean, there's a few ways. In an umbrella way, I think of it as a form of coping. So when we think about coping, we often think of problem-focused coping versus emotion-focused coping. And many people are very adept at problem-focused coping. That's solving the problem, getting the information, making the decisions, carrying out the behavior.

(00:16:51) But emotion-focused coping is a little bit more amorphous. It's a little more difficult. Because you've got all these emotions swirling around, there's nothing you can do to solve the problem. You're living with cancer. There's going to be this uncertainty. So people need to learn to regulate those emotions, or to accept them really is the way that you regulate them. So we talk about emotion

regulation strategies. So this is one factor that's been tested as a mediator between mindfulness-based interventions and improvements in symptomatology, is emotion regulation. The other one we often look at is experiential avoidance. So people use strategies like rumination or worry to try and manage emotions or regulate emotions, which is counterproductive. And sometimes they also use avoidance.

Wendy Hasenkamp (00:17:35): All of this being unconscious, these mechanisms usually.

Linda Carlson (00:17:39): Yeah. I mean, often that's how we're socialized. We learn actually to spend a lot of our mental energy in the past, ruminating—why me, if only this, if only that, you have regrets, you get depressed. Or worrying about the future, which is a big problem for many people with cancer, because what if it comes back, and constantly being hypervigilant and monitoring for symptoms.

(00:17:58) So acceptance-based approaches are really the answer. It's as simple as that, right? No one wants to have cancer, no one wants to feel this way, but you do. That's where you are. And so acceptance, and that's where the kindness comes in, the self-compassion is, yes, I'm suffering and that's okay.

Wendy Hasenkamp (00:18:17): So I know as your career has progressed, you've measured so many different kinds of outcomes, starting with the psychological, moving into quality of life and spiritual and then biological markers and all of these together. So I had meant to ask you this question. I think I'm going to reframe it now. I had wanted to ask if you think that the action of mindfulness on stress is the "primary" action. But now that I'm thinking about it, they're all sides of the same coin, in a way.

Linda Carlson (00:18:44): They really are. And I didn't really talk too much about the cognitive piece, but I would say our intervention really is more like MBCT, Mindfulness-Based Cognitive Therapy, than classic MBSR, because we do spend a bit of time also looking at the stories we tell and the interpretations and the thoughts.

(00:19:01) The mindfulness take on CBT is not, "These thoughts are wrong, they need to be changed." It's more like, "How am I interpreting the world? What story am I telling myself, and what's the consequence of that? And then are there other ways to look at it? Can I take a step back and look at things differently?" So the usual things like jumping to conclusions, magnification, catastrophizing, taking things personally, we go through all that, because it comes up in so many circumstances directly related to cancer, but also more broadly for people.

Wendy Hasenkamp (00:19:31): One of the things I was thinking about is the way that, in the common discourse, we always hear about "fighting cancer" and cancer is conceptualized as the enemy, right? And then thinking about mind-body interactions and connections and how the cancer is a part of your body. So how do you frame it in this program in terms of relating to the cancer?

Linda Carlson (00:19:56): Yeah. I mean, I personally very much dislike battle metaphors. And so people are different in how they like to think about working with their illness. So I just take their lead. Many people in our program also don't like the battle metaphors. Some people use that terminology. I don't find it helpful at all, and a lot of people find it offensive. They "lost their battle with cancer" as if they didn't try hard enough.

(00:20:23) So we definitely use more it's a cancer journey, working with, healing the body. We talk a lot about healing rather than curing, and one can be healed even if you're not cured. And so if your cancer

progresses, it's not a failure—like you didn't try hard enough or something. I find that very offensive, actually.

Wendy Hasenkamp (00:20:44): Thanks. That's helpful. I appreciate those alternative frames.

Linda Carlson (00:20:49): You know, death is not a failure. We all die. We all die. It's like Western society thinks that getting sick and dying is some kind of horrible failure. It's like, there's only one way in and only one way out. It's just a matter of how you're going to die. And can you die in a way that's peaceful and accepting and compassionate?

(00:21:07) – *musical interlude* –

Wendy Hasenkamp (00:21:34): You were talking about the stories that we tell, and how that's such a major part, from the cognitive side, of how we deal with these things and stresses. And I'm thinking about self, and of course in Buddhist theory, self is such a central construct, and moving towards seeing that more as a construction and less in a reified way. And then I'm thinking with chronic illness and cancer, it must have such an impact on one's identity.

Linda Carlson (00:22:02): Yeah, absolutely. Yeah.

Wendy Hasenkamp (00:22:03): So how does that play into the way you work with these patients?

Linda Carlson (00:22:08): I mean, it's a good opportunity. It's funny for me to phrase it that way, but cancer is a good opportunity to work with these things because people are much more... Well, they're suffering, and so they are open to things they may not have been in the past. I like to give the example of the rancher from Southern Alberta with his cowboy hat—tough, strong, silent type. But he gets prostate cancer and is facing end of life, or is really unhappy, and maybe is more open to these things.

(00:22:36) So I do find that people dealing with this serious illness are very open to looking at different approaches. Many of them would've said, "Oh, that's all new age bullshit," (excuse my language) until this happened, and nothing else is helping them. So they might show up and be skeptical, which we love. I mean, I'm more than happy to have skeptics show up. And just as the Buddha would say, it's like, don't believe me, try it for yourself. This is first-person experience.

(00:23:03) And so many of them are questioning their identity, and they're taking this as a pause, because many of them are also off work if they were already working, if they were currently working or not retired or anything like that. They're taking a certain amount of time off for treatment. So it's a really good opportunity for them to take a step back and reconsider everything about their lives, and themselves. What's meaningful, what brings purpose, who are they really? If their hair falls out, is that part of their identity? If they're not working their job, was that part of their identity? What's left?

(00:23:35) And that can be very, very powerful just to have people, as we get further through the program... At the beginning, it's more concentrative practice, awareness of breath, body scanning, just trying to train the attentional capacity to be in the moment. But then we really do focus more on open awareness, bare awareness practices, compassion practices. I really like sky-like mind, is one of my favorite practices, that connecting with the universal, the boundless.

Wendy Hasenkamp (00:24:05): Can you describe that a little bit for the audience?

Linda Carlson (00:24:07): Oh, yeah, sure. So I like to use metaphors a lot when we're teaching. And so if you use one like the clouds—so you might be sitting there hovering on breath awareness, but have this metaphor, this image of the thoughts are like clouds. And some days it's dark and stormy and that's all you can see is the dark clouds. And other days they may be light and fluffy and they're drifting across the sky. And there's a glimpse, a glimpse beyond the clouds of what's always there. And that's the blue sky, the endless, boundless, never ending interconnectedness. That's the true nature.

(00:24:43) So the clouds are all these ideas around identity and who am I and worries and all those kinds of thoughts we have that make us feel oppressed—it's pushing down on you. But beyond that, it's boundless. You can expand endlessly. There's more space in the blue sky, that sky-like mind, and that's always there. Sometimes we can't see it, we can't feel it, but understanding that that is always a possibility.

(00:25:08) So people get glimpses of the sky, of the boundlessness, of that spaciousness. And so they can remind themselves in times where they feel oppressed by the clouds and the thunderstorms that this is not going to last. There's another way of being. I've felt it. I've touched it. I know it's there. And then we also connect that with the interconnectedness—that everybody's in that same space, that same sky-like mind is universal.

Wendy Hasenkamp (00:25:34): And I imagine that's such a sense more of security and comfort, to tap into that interconnection.

Linda Carlson (00:25:42): And it's also that sense of everything's fine—calm, and peace. And they say, "I had a glimpse of that feeling of peace and calmness. And I don't have it all the time, but I know it's possible now." And some people will say, "After our retreat day, I have never felt that peaceful before—ever in my life."

Wendy Hasenkamp (00:26:03): I love that you're bringing in this... it's more towards the nondual traditions, I guess is part of how that would be described in the Buddhist realm. I don't hear that often emphasized, I think, in a standardized program as much. So I think that's wonderful, particularly for these participants, and what they're dealing with.

Linda Carlson (00:26:21): Yeah, and we have a curriculum and we've written a book, but I've never written a manual for this program. And when we teach it—so I have an online training program now too for facilitators for MBCR, but—what I say to people is that you really have to take the lead of the participants. So I'm not going to say, "Oh, in Session 2 you have to talk about pain." It's like, no, you talk about pain when they talk about pain.

(00:26:44) And so you talk about nondual awareness when they're starting to get a feeling of it. And so it's really, the skill of being a facilitator is hearing what people are coming with and taking those opportunities. There's certain places I want to go, like yeah, I want to talk about pain. I want to talk about sleep, I want to talk about open awareness. But I'm going to do it when they're receptive to it.

Wendy Hasenkamp (00:27:06): And that's, I'm sure so much of your training too, in clinical psychology, right? That sounds like a therapy setting too, how you're engaging.

Linda Carlson (00:27:13): Yeah, it certainly helps when facilitators are also therapists.

Wendy Hasenkamp (00:27:17): I'm imagining that some listeners might be curious about whether or not these kinds of interventions actually affect disease outcomes, and mortality or the way the cancer progresses. Have you looked at that at all?

Linda Carlson (00:27:33): You know, I've avoided going there, partly because it's just super complex and super expensive to do that research well, and very few people I think would want to fund it. But more theoretically is that I just don't think it's that important. And I said earlier, people want to live well. They want to have good quality of life for whatever time they have.

(00:27:54) And I think, yes, maybe there's a potential that these kind of interventions might help people live a little bit longer, and it would depend on the type of cancer they have, and how advanced it is when it's first discovered, how aggressive, there's so many other factors. But really I want to help them live better.

Wendy Hasenkamp (00:28:10): I also wanted to talk about one line of research that you've done, which is into telomere length, so this is in the biological realm. And you published a study that was groundbreaking, which actually used a really strong active control group. And maybe we can go down a little bit of a tangent just to help listeners understand about study design and things. But yeah, so you had a social support group as a control group to the mindfulness group. So first, I'd love to unpack that a little bit just so listeners have a context. Maybe you could talk about some of the challenges with studying these kinds of complex interventions, and why you need really particular control groups.

Linda Carlson (00:28:49): Yeah. I mean, I actually love study design. It's one of my other passions actually, is research design. And so in the area of mindfulness-based interventions, the design that's most commonly used if it's an RCT (a randomized controlled trial), is a control group that's either waitlist or usual care—meaning that half the participants are randomized to get the mindfulness-based intervention, the other half just do nothing.

(00:29:11) It's not a strong design. We know that almost anything is better than nothing. Right? Send them to the spa for a day, they'll be happier. I'm being facetious, but we already know, there's been so many studies done in that design. When I see another one, I just roll my eyes. So really where we need to go is what's known as comparative effectiveness, which is the type of study I do. I'm also interested in real world pragmatic research. And so in the real world, people are going to choose something that they want to do that they think will help them.

(00:29:36) So in the MINDSET study that you're describing, where we did telomere length as one of the outcomes, we randomly assigned people, it was breast cancer survivors in this case, to either the MBCR (so that's our Mindfulness-Based Cancer Recovery). Another active intervention is called supportive expressive therapy. It's also empirically supported as being beneficial for women with breast cancer. And there was a third condition that was our real control. But again, I don't like giving people nothing, so we gave them a one-day stress management seminar. It was based on Mike Antoni's work actually, with Cognitive-Behavioral Stress Management. So they got that, and then the people who had just the one-day stress management seminar, after the other interventions were done, so three months later, they were then randomized into either MBCR or supportive expressive therapy. So everybody got one of the active interventions eventually.

(00:30:23) We followed them up for a whole year. So we took saliva samples, blood samples, and did a lot of the biomarker analysis as well. And so cortisol, the stress hormone, has been studied quite a bit. We look at the profile of release over the course of a day. We know that certain profiles are healthier in

terms of a range of different outcomes, including survival in some studies. And so we did see a shift in the cortisol profiles to healthier, steeper slopes with lower bedtime cortisol, which is actually the sort of key marker that's important. We also looked at some cytokines, so these are immune cells associated with inflammation, and saw some changes there.

(00:31:02) And then what you're bringing up that was novel in this study that people really hadn't done before, especially in mindfulness, was telomere length. So that's the caps at the ends of the chromosomes within the DNA—it's associated with cell aging. And so quite a number of observational studies had shown that shorter telomere length was associated with higher risk for various forms of cancer and also shorter survival times. And it's also been shown in other diseases—diabetes, heart disease—to be a marker of actual clinical outcomes. And so nobody had really looked at whether or not telomere length could change in such a short period of time, because it was just over three months. But I worked with Elissa Epel as an advisor on this, who's an expert of course, in that area, and she said, "Well, it's possible." And I talked to our telomere biologist here at University of Calgary, she said, "It's possible."

(00:31:46) And so we did that study and what we found... So we ended up comparing the supportive expressive and the mindfulness women before and after, but there was no differences between the two active interventions. And so we lumped them together and compared them to the women in the control, which was just the one-day stress management seminar, and that's where we saw the changes. So the women in the interventions, their telomere length didn't change pre to post over three months, but the women in the control group, the [telomeres] got shorter.

Wendy Hasenkamp (00:32:14): I see. Ostensibly due to stress, or just aging?

Linda Carlson (00:32:18): Just maybe natural aging. Telomeres do shorten naturally with each success of cell division, and they tend to get shorter with age, and they tend to be shorter in people with different chronic illnesses. So they continued to shorten in the women in the control condition, but they stayed stable in the women who did the interventions. Now, we don't know if that is something that would've persisted long-term, because we didn't have that data in the follow-up. We don't know if it means anything clinically because we didn't follow them up with the clinical outcomes.

(00:32:46) It's interesting. And as you said, the media loved it. There was all kinds of crazy headlines, and I find it fascinating, but it's not surprising to me at all. And not even as important as the self-reported psychosocial stuff in my mind.

Wendy Hasenkamp (00:32:59): Right. So yeah, I wanted to just ask you a little bit about the media coverage around that, because I think there's some interesting places to go there. And then also, like you said, it's not perhaps the most important outcome, or it's not surprising. What I thought was wonderful about that study was your use of the supportive expressive group therapy as a comparative group there. Because the fact that there were no differences between that group and the mindfulness, I think at the time in the literature, people were just starting to use these more active control groups and comparing it to other potentially effective strategies.

Linda Carlson (00:33:39): Now I'm going to interject though, because there were differences on the psychological outcomes.

Wendy Hasenkamp (00:33:43): Oh okay, that's good to know.

Linda Carlson (00:33:45): The mindfulness group was superior actually on all the psych outcomes. But on all the biomarker outcomes, the two groups were similar.

Wendy Hasenkamp (00:33:51): Interesting. Okay. Well, and as you say, the media only covered the telomere stuff, which is part of what I want to chat with you about. So at least in terms of the biological markers, that would suggest that these two interventions are equivocal, or pretty much the same in terms of how they're affecting these markers. And at the time, I remember thinking like, oh, this is a really important... not dismantling trial, because that wasn't really the design of it, but it speaks to the role of the social support that exists within the mindfulness-based intervention. Is that one of the ways that you interpreted that?

Linda Carlson (00:34:29): Yeah. Well, I mean, the interesting thing was, so we added in outcome measures of social support specifically, because what I was trying to do actually was precision psychosocial oncology, to come up with interventions. We also looked at moderators or predictors of who would do better in which intervention—because the idea was, oh, maybe we could see that people with certain personality characteristics or certain baseline levels of symptomatology would be better off in mindfulness or support groups.

(00:34:54) None of that panned out, actually. And what happened even with the outcomes we thought would respond more to the social support group, like measures of social support, were better in the mindfulness group. It was crazy.

Wendy Hasenkamp (00:35:07): Interesting. So yeah, you were saying that you weren't surprised at the efficacy that you saw in that study, but of course, the media was all about this, and it was a huge media frenzy around these findings, and it was all about the cellular, the biological, the telomeres.

Linda Carlson (00:35:23): Oh, yeah.

Wendy Hasenkamp (00:35:24): So I'm just curious from your perspective how that coverage went, how accurate it was, were there problems with it, and then did that impact that research trajectory or just what impacts that had in terms of the media and your work and people's perceptions?

Linda Carlson (00:35:41): Well, I mean, there would be a press release that went out. Some people would just copy the press release, but they would make up the headlines that were always a bit crazy. So a lot of the headlines only focused on meditation. They never mentioned support groups, right?

Wendy Hasenkamp (00:35:53): Exactly.

Linda Carlson (00:35:54): Mindfulness changes your DNA. There was one, it said "mind control." Mind control changes your... I was like, we're not doing mind control here. *[laughter]* I don't know what you're talking about. And so some of the headlines were overblown, exaggerated. And maybe you do an interview with media outlets and they just pick and choose. Many of them don't let you proofread it. Some of them do, the better ones, let you fix any errors. But they just pick and choose what sensational headlines they want. I wouldn't say it impacted my research at all in any way.

Wendy Hasenkamp (00:36:27): I do just find it fascinating. We see the same thing—even still, but certainly in the earlier days of the mindfulness research field—this obsession with any brain results and how...

Linda Carlson (00:36:38): Well, because then it's real, right?

Wendy Hasenkamp (00:36:39): Exactly.

Linda Carlson (00:36:41): "Real."

Wendy Hasenkamp (00:36:41): Yeah, that's where I wanted to go is, what's your perception of why that is so fascinating?

Linda Carlson (00:36:48): Well, it's cool, right? I mean, it's really cool to demonstrate the mind-body connection, but it's not more real. I mean, A, there's as much error in that measurement as there is in psychosocial measurement. People think because there's a number on a page for telomere length or cytokine expression or whatever it is, that all of a sudden it's more real. I mean, there's error in those measures too.

(00:37:09) But I think more substantively, what's more important to you? Something you can't even feel that might not affect your health in any way, or how you actually do feel? And people are saying, "I feel better. I can do this. I can do that. I can go on with my life. I can cope. I can go back to work. I can sleep at night." I mean, what's more real than that?

Wendy Hasenkamp (00:37:30): Yeah, totally agree. So you wanted to say something about your current work?

Linda Carlson (00:37:34): Yeah, it's called the MATCH study. So another thing we found out in MINDSET, so we looked at, as I said, all these moderators that might predict differential outcome in two groups, to see if we could predict who'd do better, and we also looked at preference, because this was a randomized trial and people didn't have choice. They knew what the interventions were, but we told them which one they got.

(00:37:52) And what we saw was that only about 30% of the people got the intervention they originally were hoping to get, because we asked them that before they were randomized. And then when we compared people who got their preferred intervention to their non-preferred—no matter what it was, so some people preferred the support group, some people wanted mindfulness, some people actually wanted the one-day stress management seminar—if they got what they wanted, they improved more on a couple of the outcomes, like quality of life. No matter what it was. So we saw that preference had an effect, whereas other characteristics didn't.

(00:38:21) And so that got me thinking. You know, RCTs, yeah, they're the gold standard, they're the only way to determine causality and improve your internal validity. But they're not very real world...

Wendy Hasenkamp (00:38:32): The randomization is not.

Linda Carlson (00:38:33): Yeah, it's ridiculous. Who in the real world says, "Tell me what to do." It doesn't really work that way. So the next trial we did is called the MATCH Study, and we picked the superior intervention, which was the mindfulness because it did a lot better than the supportive expressive group therapy on most of the outcomes. And we compared it to a Tai Chi/Qigong group, which also had evidence building around its efficacy, and I wanted to establish a group like that at our center.

(00:38:58) And so we incorporated preference into the design so that people, when they signed up—and it was for all kinds of cancer survivors post-treatment, they had to still have some level of distress—and we asked them, would you like to do a mindfulness group or a Tai Chi group? And if they said one or the other, then they got it. We said, "Or are you willing to let us choose one for you?" And so some people said, "Yeah, that's fine," and so then they were randomized.

(00:39:20) We have now both Tai Chi and mindfulness chosen as preference, and both Tai Chi and mindfulness randomized. So we've got those four groups. And then within each of those groups, we also randomized them to do it immediately, or to be a waitlist for three months.

Wendy Hasenkamp (00:39:34): Oh, wow. That's a complex design.

Linda Carlson (00:39:37): It's a very complex design, there's eight groups. And we added in more biomarkers. So we did the ones we've done before, the cortisol, salivary cortisol. We did inflammatory cytokines. We haven't done the telomere length yet, but we're going to do it. And we did gene expression with Steve Cole down at UCLA. So this is the latest thing—do mind-body interventions actually change the way your genes are expressing proteins and all this kind of thing related to all your bodily functions. So we added that in and we added in also some physical markers that were more likely to be associated with Tai Chi, like grip strength and speed walk, and those kind of physical things. And we also did psychophysiology stuff too, so we looked at heart rate and blood pressure and these kind of things.

(00:40:22) And so we enrolled over 600 people, a huge trial for this area, because MINDSET was around 250 or something. So 600 people, Calgary and Toronto cancer survivors. They did either the Tai Chi intervention for 12 weeks or the mindfulness intervention for nine weeks. We did all these measures, pre and post. COVID hit just as we were wrapping things up.

Wendy Hasenkamp (00:40:44): Oh, boy.

Linda Carlson (00:40:45): Well, we were almost done. So none of it's been published yet, but we're just starting to look at the outcomes. And so a sneak peek is that I got the data back on the gene expression, and Steve Cole said, "This is the cleanest, clearest result I've seen on decreasing genes associated with inflammation, in both interventions."

Wendy Hasenkamp (00:41:09): Wow. That's amazing!

Linda Carlson (00:41:12): Yeah. So I haven't written it up, this is the first mention of it. It's preliminary analysis. We need to look at some more stuff, but it's definitely, especially for the mindfulness group, we're seeing clear significant downregulation in inflammatory gene expression.

Wendy Hasenkamp (00:41:26): I'm really glad you mentioned that, because another thing that I wanted to ask you about—I know you've done some inflammatory markers in some of your other studies, but I know you also did a study on irritable bowel syndrome, IBS, which is a very highly inflammatory condition. So can you share a little bit about that? I just love these links with inflammation.

Linda Carlson (00:41:48): Yeah. Well, so we didn't do any biomarkers in that study. It was just symptoms, but it was a lot of the studies we look at more of the psychological stuff, the anxiety and the depression and stress. Here we actually looked at symptoms of IBS specifically—so constipation, diarrhea, gas bloating, all that. Those symptoms improved a lot in the intervention group.

Wendy Hasenkamp (00:42:06): And those are directly related to inflammation in the gut?

Linda Carlson (00:42:10): Yeah. So we didn't look at any of those biomarkers, but people improved a lot in terms of their symptomatology in that study too.

Wendy Hasenkamp (00:42:16): I love this convergence, and I feel like a lot of fields are really starting to look more and more at inflammation underlying so many chronic problems that we have.

Linda Carlson (00:42:27): Yeah, and you know another thing we're doing, this as a bit of an aside, is looking at microbiome stuff as well.

Wendy Hasenkamp (00:42:32): Ah, I was going to ask.

Linda Carlson (00:42:33): Yeah, so we haven't done it in the context of mindfulness, although that's a study on deck, is just looking at changes in microbiota composition in the gut pre/post mindfulness. But we have done some observational stuff on cancer survivors showing there's less diversity in the microbiome composition in cancer survivors, and they have a lot of GI symptoms and psychosocial symptoms. So we're bringing in the psychosocial symptoms to what's happening in the gut as well. So we're just about to start a probiotics trial for cancer survivors with GI symptoms.

(00:43:03) – *musical interlude* –

Wendy Hasenkamp (00:43:28): Well, I know another direction that you've been going recently is developing online platforms for these kinds of interventions, and app-based platforms. So do you want to share some about that and maybe some of the pros and cons compared to in-person?

Linda Carlson (00:43:40): Sure, yeah. One of the things that's always been important to us is reaching a lot of people who have cancer, as many as we can, with these kinds of interventions. And we know there's limitations to in-person programs, not just their availability because you need trained facilitators, but also the capacity of people going through cancer treatment to just take the time, the energy, the expense of coming to an in-person program.

(00:44:05) So back in 2015 actually, we partnered with a company called eMindful and created an online version. And so we wrote that up and handed it over to them, and they've been offering it mostly through employee assistance plans and that kind of thing as an online modality. And we're trying to evaluate it. This study has been a bit stalled, but we've been using that program for people during chemotherapy, because most of the research in people with cancer and mindfulness-based interventions is post-treatment. But a lot of the symptoms we're treating, like fatigue and anxiety, depression, they developed during chemotherapy. They're chemotherapy related symptoms and side effects.

(00:44:43) So the idea with this study is that, okay, we've got the online program now, so it'll be easier for people to do it while they're doing chemo, and maybe this could prevent, diminish, delay the onset of some of these symptoms. So catch them before they get really bad. And so what we've been doing is recruiting people just as they're starting chemotherapy and randomly assigning them to do the 12—it's a 12-week shorter session version of MBCR—while they're going through chemo, or after chemo. So it's kind of, the waitlist is basically they still get it, but they get it after they finish the chemo. So we've been doing this study for quite a while now. It's been tricky to recruit people because there's a small window

of time between when they know they're doing chemo and when they start it, and then COVID happened. But looking at the usual suspects of chemotherapy-related side effects, so our primary outcome is fatigue. We're also looking at cognitive function, nausea, vomiting, pain, anxiety, depression. So that study is ongoing with that online platform.

(00:45:39) And then after that, around 2020, we... And again, these things are serendipitous. We were basically approached by people who run these companies. Somebody said, "Hey, we have this online thing. You want to put your thing online?" I said, "Well, if you're can help us, sure." And so there's a mobile app, it's called AmDTx now, Digital Therapeutics. And so they approached us, they're out of Toronto, and said, "Hey, do you want to put your mindfulness thing in an app?" And we said, "Yeah, actually we've been thinking about that." And I had a postdoc who really wanted to do that.

(00:46:07) So we created an app-based version of MBCR, and it was really fun. So Michael Speca and I, we went into a professional recording studio. We didn't want it to be just guided meditations, because so much of the benefit of the program that we see is not just doing guided meditations, it's that, as Jon Kabat-Zinn would say, "orthogonal shift in consciousness" where people really understand what it is to be mindful and they understand, there's stress responding, there's the cognitive piece. So we wanted that teaching to be part of the app. And so we went in the studio and we just recreated our dialogue, how we teach these things in classes. And so the developers then took it and turned it all into app friendly soundbites, basically. So it's 27 different tracks, and a person has to go through it sequentially. It's called the Mindfulness-Based Cancer Survivorship Journey. So it's a journey within this AM app. And so people go through it sequentially, and they get the teaching. They do a practice. They're interspersed as it would be in a class.

(00:47:06) And so we studied it in a pilot trial a few years back with, I don't know, 85 people with cancer went through it. It was a wait list controlled design. In the end, it became more of a user acceptance testing, because you know people had a hard time getting on it and we had to tweak it a bit. But in the end, the pilot work did show benefit, and our primary outcome there was stress symptoms. And so now we're running a Canada-wide trial.

Wendy Hasenkamp (00:47:30): Oh, nice.

Linda Carlson (00:47:31): Yeah, it's called the SEAMLESS study. And so it's already launched in Calgary, but we're going to be in five sites across Canada. It's through the Canadian Cancer Trials Network of clinical trials sites. And so we're recruiting 345 people, and we're trying to target a diverse group, because one of the major limitations of mindfulness research very generally is the limited diversity. I wrote a commentary once called Wealthy White Western Women. You know, that's who we get. And in psycho-oncology, it's the same thing, and they have breast cancer. So we really need to reach out to other demographics, lower SES, people from different racial, ethnic, cultural backgrounds, more men.

(00:48:11) And so with the SEAMLESS study, that's what we've been doing. So we've been recruiting with invitation letters from our cancer registries that target lower SES postal codes. We're oversampling men, and we're really trying to get a diverse group into this study. And it's more of a pragmatic design, very wide open inclusion criteria. So that's underway. We've recruited, I don't know, 100 or so of the 345. And so they're using the app for four weeks, is the design.

Wendy Hasenkamp (00:48:37): Great. Yeah, that's such an important expansion. I appreciate you naming that, the really narrow participant pools that have been worked with in many, many fields of

mindfulness particularly, as you were saying. It'll be interesting to see whether the results generalize from what's been done.

Linda Carlson (00:48:54): Yeah, it really will. I have a Master's student actually who's specifically looking at the diversity piece, so that'd be good, yeah.

Wendy Hasenkamp (00:49:01): Well, I wanted to ask your perspective, stepping back, you've been teaching and researching these interventions for over 20 years. So you've been in this field really since the beginning. And you've been embedded also in a medical context, which not many researchers have been for that long. So I'm just curious, your title is Professor of Psychosocial Oncology, which is not I think what most people would immediately think of in relation to oncology. As we've been saying, the biological part of cancer is usually emphasized. So I'm just curious your perspective on how these practices have been accepted and if it was a difficult sell in the beginning. It sounds like you were placed in a context where there was already interest there. But in the medical world more broadly, how have you seen the landscape change maybe, over time?

Linda Carlson (00:49:54): Yeah, sure, sure. I was really fortunate, as you said, to be in a situation, in an environment where there was a lot of freedom. I attribute a lot to our division head. So at our university, there's an academic division of psychosocial oncology, and there's a clinical service of psychosocial resources at the cancer center. But they were one and the same when I started. So Barry Bultz is the name of the fellow who was the head, and he's also one of the leading figures in psychosocial oncology worldwide—now has the Order of Canada, was the president of many associations. So he really paved the way and had a lot of influence in our setting. He thought this was a great line of research. Our cancer center director also actually did yoga. And so there was never any pushback. It was like, this is a great idea, let's do it. And because we're in the Canadian publicly funded system, we have staff who are on the payroll in the department. So it was very easy to train people and assign them to do these evidence-based interventions.

(00:50:56) And then I guess I'll shift tracks a little bit to talk more broadly around implementation of mindfulness-based interventions in cancer, broadly. So that's been a tougher sell over the years, I'd have to say. For some settings, it's been no problem. In fact, in Canada, almost every cancer center has something, partly based on our early work and people using that evidence to convince people. But also because of the model—in publicly funded healthcare, I think providers have more autonomy in terms of the kind of services that they are providing. And group-based interventions, they're less expensive. They're more economically... they save more money for administrators. So if we can do things in a group-based intervention, then that's all great.

Wendy Hasenkamp (00:51:35): And they provide social support, which is even better.

Linda Carlson (00:51:39): Yeah, yeah. And so the other work we've been doing... Maybe I'll take a step back and talk about the Society for Integrative Oncology (SIO). This is a professional society, international, 600 or so members. I'm currently the president, and I've been involved for the last 10 years or so with SIO. And so it's the premier organization for evidence-based integrative therapies [for cancer]. So not just mindfulness-based interventions, but also yoga, acupuncture, a whole range of them, but really focusing on trying to integrate evidence-based interventions into oncology care. And so a number of years ago, we started a guidelines project, and we did it within SIO at first. And we published evidence-based guidelines for breast cancer patients back in 2014 I think was the first one.

(00:52:21) But then we partnered with ASCO. And if you're outside cancer, that might not mean anything to you. But if you're in the cancer world, you will know that ASCO is the American Society of Clinical Oncology—I don't know, 60,000 members around the world. And it's oncologists. It's the largest most influential oncology organization in the world. And so SIO, we're wee compared to that, and focusing on integrative therapies. We partnered with ASCO to produce a series of five guidelines, clinical practice guidelines. And these are important medically for everything, heart disease, diabetes, whatever. A clinical practice guideline is what drives practice and it's what drives reimbursement. And so we were able to last year publish our first joint guideline on integrative therapies for pain management. Mindfulness didn't have a strong evidence in the area of pain. It was more and more acupuncture related things.

(00:53:08) But on August 15th [2023], we published the joint guidelines on integrative therapies for anxiety and depression. I'm the first author on that, and it was a panel of 16 experts, half from SIO, half from ASCO. We followed the ASCO practices using only high level RCTs. We rated the evidence. We have a number of evidence-based recommendations, the strongest of which are that mindfulness-based interventions should be offered to all people with cancer during and after treatment.

Wendy Hasenkamp (00:53:39): Wonderful.

Linda Carlson (00:53:40): It's huge.

Wendy Hasenkamp (00:53:42): And so this has implications, you said, on reimbursement and insurance and all of that.

Linda Carlson (00:53:45): Huge implications. Huge implications. Often guidelines are wrapped into accreditation for comprehensive cancer centers. So the work now is on implementation and uptake of the guidelines, right? So yes, they guide reimbursement for insurance companies. They guide what kind of programs and services are offered to people within comprehensive cancer centers, which are the big academic centers and also the community-based centers. The practitioners now within the integrative world can hand these guidelines to their administrators and say, "ASCO says we should be doing this." So it's a huge coup, right?

Wendy Hasenkamp (00:54:22): I just love tracing the whole trajectory from you in graduate school being interested in this, and being part of a group to come up with an intervention, the first of its kind, to implementing at an international level these guidelines, which is a systemic and structural change in this system. So that is just amazing.

Linda Carlson (00:54:42): Yeah, it's huge. And so we also have guidelines coming out on sleep and fatigue, are the next ones. So mindfulness-based interventions will probably figure in those as well.

Wendy Hasenkamp (00:54:51): Fantastic. And I guess that also involves making sure that it's feasible in these different institutions and they have what they need, which I guess would involve teachers of these types of programs, and things like that?

Linda Carlson (00:55:02): Well, yeah, resources. Sometimes there's community-based organizations that might offer them. In Canada, the push is that it should be all free. In the [United] States, there's different reimbursement models, sliding scales sometimes. But really my philosophy around this is that this should be no less important than chemotherapy, radiation, and surgery.

Wendy Hasenkamp (00:55:24): I love it. Well, Linda, I've so enjoyed this conversation. One other thing I wanted to ask about before we wrap up, and that's your involvement in forming the new academic society—the International Society for Contemplative Research. Just to give listeners a little bit of a background, one of the original goals of Mind & Life was to try to help seed this new field and create a field of academic research and study around contemplative practices, and these intersections around mind, and the application of these practices in different sectors of society. So for many years we were the hub of that academic community because it was such a new area.

(00:56:08) And as fields grow and gain momentum and more and more people become involved, there's kind of a natural process where they will form their own academic society, made up of the folks who are doing the work, and that group will help maintain that momentum and host the annual academic conference and things like that. So several years ago, it seemed like the field had really grown enough that it could sustain its own society. So Mind & Life really wanted to help facilitate this transition, and you've been a huge part of making that happen. So could you share a little bit about your experience there, and how that's gone?

Linda Carlson (00:56:46): Well, I've been involved in Mind & Life for a long time, and that was also one of the early involvements that shaped the trajectory of my whole research program, was early 2000s attending one of the dialogues, I think it was in Boston with the Dalai Lama, and then getting in on the ground floor with the Summer Research Institute. I was at the first one, and then I was on the planning committee for subsequent ones, and faculty and stuff. And then I took a bit of a break while I had a couple of kids and wasn't able to go to SRIs and things like that. But then got involved with Mind & Life again as co-chair of the 2020 conference—which ended up being virtual, but we still had 600 odd people.

(00:57:25) Then Mind & Life decided that they wanted to support us to go independent to develop this research society. So that's when I was involved with a small group of people, Amishi Jha, Zindel Segal. We got a Think Tank grant. And so we ran a couple of think tanks. They ended up being virtual, but we had 40 odd senior scholars in the area across disciplines. So that's one of the key things. And we developed a mission and a vision for what's become the ISCR—the International Society for Contemplative Research. And so we created an executive committee across the different disciplines, tried to have diversity in other ways, and we hosted our first meeting, back in February in San Diego. And it was great. We had over 300 people, it was beautiful. So we're actually planning our next meeting. We haven't announced it yet, but very soon will be. It's going to be in Italy, June 2024 in Padua, which is just like 20 minutes outside Venice.

Wendy Hasenkamp (00:58:18): Okay. Well, flag for contemplative researchers, block your calendars for next June in Italy. That sounds amazing.

Linda Carlson (00:58:25): Yeah.

Wendy Hasenkamp (00:58:25): Well, it's really been so exciting to see how the field has grown and evolved over the years, that it's now big enough and autonomous enough to be able to move all of this forward. So thank you so much for all that you're doing to help make that happen.

Linda Carlson (00:58:40): Yeah, and it's been great to have the support of Mind & Life as we branch out on our own, really focusing on the scholarship and the research piece of it.

Wendy Hasenkamp (00:58:48): Well, Linda, thank you so much for all of this amazing work and all of the people that you are helping. And thanks for taking the time to be with us today. It's been a real joy to chat with you.

Linda Carlson (00:58:59): Yeah, it's been great. It's always fun talking about all these things.

Outro – Wendy Hasenkamp (00:59:06): *This episode was edited and produced by me and Phil Walker. And 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 Apple Podcasts and share it with a friend. And if something in this conversation sparked insight for you, let us know. You can send an email or voice memo to podcast@mindandlife.org.*

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