



MIGRAINE WORLD SUMMIT

INTERVIEWS WITH WORLD LEADING EXPERTS

TRANSCRIPT



MINDFULNESS-BASED STRESS REDUCTION

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Introduction (00:00): The idea of neuroplasticity: Our brains are wired to change, and they are constantly changing based on what we're doing and what we experience. And so neuroplasticity is this idea that there are certain circuits or pathways in the brain, and activities that we engage in, strengthen those circuits, and the ones that we don't engage in, weaken those circuits. So just like a muscle — how it can build over time, or learning a musical instrument and you learn the capacity over time — mindfulness is a practice that, with time, you can build that and potentially change both the function and structure of your brain.

Carl Cincinnato (00:44): Only about half of us with migraine respond to preventive treatments, and more than 10% of us stop due to an adverse event. In addition, 50% of us are dissatisfied with our current treatment strategies. When treatments are ineffective, there's always a risk of overusing abortive medications, which can lead to further complications and even medication overuse. These shortcomings reinforce the need for additional migraine treatment strategies. In this interview, Dr. Rebecca Wells discusses mindfulness meditation as a complementary strategy, which may not only help with migraine, but could also reduce a range of associated symptoms and issues. Dr. Wells is a leading expert in this space, and lectures to other headache specialists with presentations, papers, and seminars on this exact topic. Dr. Wells, welcome to the Migraine World Summit.

Dr. Wells (01:33): Thank you so much. It's an honor to be here.

Carl Cincinnato (01:35): Let's start by understanding, what is meditation?

Dr. Wells (01:38): Yes. So, meditation is a practice of focused attention and concentration. It's not a clearing of the mind, but a focusing of the mind.

Carl Cincinnato (01:48): And to a lot of people that maybe haven't heard a lot about meditation, it seems to have some religious connotations. Is that true or not?

Dr. Wells (01:57): So, meditation has a long history and historical roots in religion. And in fact, now many people think, when they hear meditation, they think it's a Buddhist practice. But in fact, meditation has roots in almost all religious backgrounds, and religion and meditation can be a contemplative practice, but it doesn't have to be. So it can be spiritual or religious, but it doesn't have to be.

Carl Cincinnato (02:21): I've heard of a lot of business leaders who are now practicing meditation just by sitting on a chair in the office at work. So it seems like there is quite a lot of secular practice out there, as well.

Dr. Wells (02:29): Absolutely, yes.

Carl Cincinnato (02:31): And what is mindfulness?

Dr. Wells (02:34): So, mindfulness is paying attention in the present moment nonjudgmentally. And so it's really important to recognize the different features and key aspects of that. It's an intentional practice of being in the present moment with an attitude of nonjudgment. And mindfulness is something that, as human beings, we all have the innate capacity to be, and to experience mindfulness. And in fact, that's one of the things that's so enjoyable about spending time with children, is that children often are very present in the present moment. But as we grow as human beings, our frontal lobe expands and we



have the capacity to think about the future and the past. And so it becomes more challenging to be in the present moment. And so mindfulness is a state of being, but it's also a trait. So we all have the capacity to experience the state, but it's also a trait of being.

Carl Cincinnato (03:26): So, mindfulness has been described as being present in the moment, and as adults we learn how not to be present by thinking about either the past or the future?

Dr. Wells (03:33): Exactly, right.

Carl Cincinnato (03:34): And how is mindfulness different from meditation?

Dr. Wells (03:37): Yes. So, what's interesting is mindfulness can be enhanced through the practice of mindfulness meditation. Now there are multiple different types of meditation, but I'll go into talking about mindfulness meditation specifically. When we talk about mindfulness meditation, there's sort of two types of mindfulness meditation: One is focused attention, and the other is open monitoring. So, focused attention is the actual intentional practice of focusing on an object — often the breath. And when more sensory events, like thoughts or feelings or emotions arise, notice them, acknowledge them, and then let them go with an attitude of nonjudgment and acceptance as you return your attention to that focused object, such as the breath.

Dr. Wells (04:26): And so with building the practice, you're able to continue to recognize when awareness shifts away from the focused attention. And then there's open monitoring, which often is a practice that's developed once someone has the ability to do it with a focused attention. So open monitoring is not just an awareness or focus on the breath or the object of your attention, but then also tuning in to other sensations like thoughts and cognitions, emotions and feelings, and being aware of them without appraising them. And so what's really interesting about this practice, and what's important to recognize, is that when somebody is practicing this ... when people talk about learning mindfulness or learning meditation, people sometimes say, "Oh, I can't do that. I'm not good at that." Well, as human beings, we all have the ability — we always think about other things that come up in our head.

Dr. Wells (05:25): But what's the magic practice is when we become aware that we're thinking of other thoughts, and then we bring our thoughts back, or our attention back to the object of like the breath; and the key thing is, with an attitude of nonjudgment. So when you say, "Oh, I can't do that; I'm not good at it," there's two features: One is, we can all do it. But it takes a practice to build a capacity to do it, but also saying, "I can't do it" is a judgmental statement. And that's part of the practice of mindfulness, is recognizing how we apply all these appraisals all the time to our thoughts, our capacities. We're taught how to do that. And that's an important aspect of who we are as human beings, but also being aware that those are judgments. And part of the practice of mindfulness is taking away that judgment.

Carl Cincinnato (06:11): It's interesting, we tell the children all the time, "Sit still, be quiet." And it's actually quite difficult for some people as adults to do that.

Dr. Wells (06:18): It is, it can be. Right. And it's interesting because the practice of mindfulness meditation initially often starts with a sitting practice, but as you become aware of that practice, there are other forms that can be incorporated: There's walking meditation.



Really almost anything that you do can become a mindfulness meditative experience if you allow yourself to be present in that moment. And that's one of the goals, actually, of mindfulness meditation — its particular practice is being able to then incorporate it into your daily life. So things like brushing your teeth, taking a shower, unloading the dishwasher, things that we do almost every day that can, if it's taken with an attitude of being present, then it can be a really powerful practice.

Carl Cincinnato (07:09): So, I have to confess, I was one of those skeptics not too long ago about meditation, and I associated it with, sort of, the Buddhist practice and crossing your legs up over in some impossible position. But it's not that at all. And there seems to be some serious medical and health benefits from doing it.

Dr. Wells (07:27): Yes, absolutely.

Carl Cincinnato (07:28): So let's get into that. How does meditation change the brain?

Dr. Wells (07:32): Yes. So this is so fascinating. I'm a neurologist, so I love trying to understand this. But first when we're talking about mindfulness meditation and trying to understand how it may work, there's a multitude of different mechanisms that have been hypothesized, and data suggests that they may play a role. So one is thinking about the sympathetic versus the parasympathetic system. And so our sympathetic is our drive to ... it's sort of the fight or flight, that sort of drive, that adrenaline rush. And in prehistoric times, that's when the tiger was running after us. And so our parasympathetics are our ability to be calm. And usually there's a balance between those two systems. And some people think that the practice of mindfulness enables us to bring up and enhance our parasympathetics. Some people think it may enhance our ability to cope or it decreases depression and anxiety or overall well-being.

Dr. Wells (08:25): There's all of these different thoughts. But what I'm really interested in as a neurologist is how it may potentially change the brain. And so, research has been exploding in this area. The neuroscience of mindfulness has been fascinating and there's been multiple studies that have been conducted, specifically trying to understand what is going on in the brain and how is the brain affected by mindfulness. And research has been done on multiple different levels. So first, research has been done comparing the brains of meditators to the brains of people who don't meditate. And what's interesting about that is that we do find differences in the brains of people that meditate compared to those who don't meditate. But maybe they were born with those differences and that is what drew them to become meditative practitioners. There's also research that takes individuals who don't know how to meditate, teaches them to meditate, and then looks at their brain both before and after that, and looks at changes.

Dr. Wells (09:21): There's also studies looking at when people actually are meditating, and having them in neuroimaging scanners while they're meditating to see what parts of the brains are active. What's fascinating is, across all of these studies, the areas of the brain that are important, across all those different types of studies, seem to be the same areas of the brain that are important in the activities that we think meditation enhances. So specifically, attention, emotion regulation, concentration. And so it's all these areas of the brain that, potentially, we think are playing a role, and then when we look at multiple studies across multiple different ways, those are the areas of the brain that are important. So meditation may actually change the brain.



Carl Cincinnato (10:03): It's interesting to draw that analogy between the two brains: one that has a meditation practice and the other that doesn't. It's like the two bodies of someone who goes to the gym and someone who doesn't, and seeing a physical difference between them.

Dr. Wells (10:16): Yes, and you bring up a really important point, which is the idea of neuroplasticity. Our brains are wired to change, and they are constantly changing based on what we're doing and what we experience. And so neuroplasticity is this idea that there are certain circuits or pathways in the brain, and activities that we engage in, strengthen those circuits, and the ones that we don't engage in, weaken those circuits. So just like a muscle — how it can build over time, or learning a musical instrument and you learn the capacity over time — mindfulness is a practice that, with time, you can build that and potentially change both the function and structure of your brain.

Carl Cincinnato (10:58): It's pretty remarkable ... the fact that being able to sit still and be mindful can actually change the structure of your brain.

Dr. Wells (11:06): It's amazing. And I think one of the things that's interesting and distinct that some people aren't aware of is that practicing in mindfulness is not just relaxation. So, mindfulness is a focused attentive practice and relaxation. You know, you can be sitting in front of the TV and relax. That's not mindfulness. And what's interesting is mindfulness meditation has effects on emotion regulation, attention, concentration, emotional reactivity, and something called metacognition, which is the idea that you can become tuned in to your thoughts as separate from yourself. So for example, you might have the thought, "Oh, I'm hungry right now." And then you step back and say, "OK, well that's a thought. Am I hungry, or am I thirsty, or am I tired? You know, what does my body need right now? That was a thought. Let me think about that thought." And so being tuned into thoughts separate from ourselves is very powerful. And so that concept of metacognition is something that's developed with the practice of mindfulness.

Carl Cincinnato (12:08): So it sounds like it makes you more self-aware, as well as enhancing almost like your IQ — like your attention, your focus, your memory.

Dr. Wells (12:17): Potentially. Now I don't know if there's any studies that have looked at mindfulness and IQ, so I'm not going to make any claims about it enhancing your IQ, but it can change the way we relate and perceive the world.

Carl Cincinnato (12:29): I mean, if we were talking about these types of potential benefits in a drug or a treatment, it would be a billion-dollar drug or treatment. And the best thing about this is that it's free.

Dr. Wells (12:38): Yes.

Carl Cincinnato (12:39): We can do it ourselves at home.

Dr. Wells (12:40): Yes. And that's one of the things that I think is so powerful, is being able to provide patients with opportunities of things that they can do on their own without medications.

Carl Cincinnato (12:50): Is meditation something just for people who are really stressed?



Dr. Wells (12:53): No. So, this is an important idea and concept. So, stress is in all of our lives. We are not going to get rid of stress. And in fact, a certain amount of stress is helpful. There's this beautiful inverse U-shaped curve, where you have stress on one axis, the X axis, and like, your performance on the Y axis. And it's like this where a certain amount of stress can be helpful and help us perform. However, it's when it gets excessive that it becomes a problem, or when we don't have effective ways to be able to respond to stress. And that's one of the things that's beautiful about mindfulness, is it teaches individuals the difference between a reaction and a response. So when an event happens, we automatically typically respond. But with the practice of mindfulness, you create a space. And so the event happens, you're able to reflect on the event, and then come up with a response that will actually enhance the experience, rather than just an immediate reaction. And so that's something that's really important is that it's not going to take away stress, but it can change our ability to respond to stress in effective ways.

Carl Cincinnato (14:04): A lot of people with migraine have been told just to stress less, and then their migraine condition will improve. Can you talk about the role of stress and migraine, and how mindfulness meditation may impact that?

Dr. Wells (14:16): Yes. So, stress is the No. 1 reported trigger for migraine attacks. Many people find things that trigger it, and stress can trigger for many patients; up to 80% of patients report stress as a trigger to set off their headaches. And so what's interesting about mindfulness that we're trying to understand is if practicing mindfulness can decrease the likelihood that you're going to experience an event as stressful, or whether or not when a stressful event happens, you're able to better respond to it.

Carl Cincinnato (14:46): Yes. So if you try and tell a single mother of three children who also works full-time, "Just stress less," you'll be slapped, and rightly so. But that mother, if she learns how to meditate, then even though she might have an extreme level of stress, she might not have the physiological response to that stress.

Dr. Wells (15:06): Right. And what's interesting about understanding migraine and stress is that often it can be high levels that can trigger a stress. But what's also interesting is that we find that there's something called the letdown stress hypothesis, where it's actually the day after or two days after Thanksgiving, that somebody has hosted Thanksgiving, that the migraine attack happens. It's like after the event of all the stress that there's this letdown. And so there's this hypothesis that the stress hormone, or cortisol — that we think may play a role in setting off headaches — it may actually not be the level of that, but the change in the level. So not just on the rise but in the change. And so if you are able, through a mindfulness practice, to create a more steady state of that so you're not having highs and lows, it potentially could change migraine.

Carl Cincinnato (15:58): For someone who's still skeptical about mindfulness meditation, what is the evidence like?

Dr. Wells (16:08): Yes, so mindfulness meditation — there's been so much research in mindfulness meditation, and specifically in terms of chronic pain. A lot of research has demonstrated mindfulness may be helpful in chronic pain. So, specifically with chronic back pain, irritable bowel syndrome and fibromyalgia, and then also with headache disorders. And so it's important to recognize what the data show in terms of mindfulness meditation and how to interpret that data. And so I am excited. I've just finished writing a review paper of all the studies looking at mindfulness, meditation, and migraine. And what's fascinating is



that these studies have been conducted all across the world; so U.S., Germany, Iran, Italy, and if we include tension-type headache in addition to migraine, includes India and Australia, as well. So people all across the world are trying to understand how mindfulness meditation may help headaches, which demonstrates both the prevalence of migraine across the world, but also the ability of this intervention to touch people across cultures, and the interest in this intervention across cultures.

Dr. Wells (17:14): And so what the research has shown, specifically with mindfulness meditation, is that it may help people be able to relate to their headaches and improve their disability associated with their headaches, and then also be able to affect their day-to-day lives with other emotional things, like being able to feel in control of their headaches with self-efficacy. And specifically in talking about mindfulness meditation and migraine, there's three studies that have been conducted that I want to just point out. So, the first was a pilot study that we conducted looking at an intervention called mindfulness-based stress reduction, which involves eight weekly classes where individuals are taught in a group setting how to practice mindfulness meditation. And this is a standardized protocol and it's taught all over the world. And what we found was that individuals who learned to practice mindfulness meditation compared to people who were not learning yet, had improvements in their headache duration, and also in their self-efficacy, and in their disability, and in the capacity to be mindful. And this was a small pilot study, only 19 participants. But it showed that potentially this may play a role in migraine.

Dr. Wells (18:26): There was another study that Dr. Betsy Seng in New York conducted looking at mindfulness-based cognitive therapy, which pulls in features of cognitive behavioral therapy along with mindfulness. And what was interesting about her study was that when she looked back at all the data ... We often so far with the data to date looking at mindfulness, we haven't seen a dramatic improvement in the intervention compared to control groups of headache frequency. So for example, the study that we did, both groups actually improved their headache frequency, but not in a difference; it was not statistically significantly different. So she actually was not looking to see if it changed frequency; she looked to see if it changed disability. And disability is basically whether you have a headache or not, how you were able to continue functioning in your day-to-day life: Does it take you away from the things that you enjoy doing? And she found that this intervention decreased the disability in people's lives.

Dr. Wells (19:23): There's a third study that's really fascinating that was conducted in Italy, where it took individuals with chronic migraine and medication overuse headache. And individuals, after they went through a withdrawal program of the offending medication, they were then given the choice: "Do you want to do regular medications or do you want to practice and learn mindfulness meditation?" And these were individuals who were severely disabled with at least 20 days a month of headaches. And what they found was that both groups had dramatic decreases in their frequency, severity, and intensity of headaches. And it was very powerful because it showed that potentially in this population, mindfulness meditation could be as powerful as medication.

Dr. Wells (20:07): Now this study has one big major challenge to it, and that was it was not randomized. So people got to choose which intervention they wanted, which may have preselected individuals who were interested and had high expectations for improvement, and most likely to actually participate in the intervention of mindfulness meditation. So it may have preselected out the people who are more likely to respond. So it's hard to know.



They're conducting a follow-up study to further assess whether or not, with randomization, they'll see similar benefits.

Carl Cincinnato (20:40): That's quite a high level of evidence that suggests that there is huge potential for mindfulness meditation in people that have migraine.

Dr. Wells (20:49): Right. And what's exciting is that — so far the data to date had been done that had been small studies — and we're really excited that now the NIH with the National Center for Complementary and Integrative Health (NCCIH) is funding more and more of these studies. So we've just finished conducting a much larger study with over 90 individuals looking at this. And I can't wait for the data to come out; it's pending. Hopefully, in the next year we'll have more information to better understand how this may be helpful. And what's exciting is that there's researchers all over the world who currently have studies that are about to be finished or about to be conducted in this arena. And in fact, the Italian study, they were able to get funding from the Italian Ministry of Health to conduct this research.

Dr. Wells (21:34): So it is being prioritized and it is being understood as something that potentially could be very helpful, but we need to better understand it to also better have a realistic understanding of what the potential benefits are. Because this might not be something for everyone and it may not affect frequency. And so if somebody were to recommend this as a sole treatment option without any other treatment, and tell someone it's going to cure your headache disorder, that's not appropriate, based on the data that we have now. And so we need to understand what the benefits are, but also within the reality of what we've seen from the data.

Carl Cincinnato (22:11): But it certainly sounds like there's huge potential for it to reduce attack severity. And something else that you mentioned was self-efficacy. Can you explain what that is?

Dr. Wells (22:19): Yes, so this is really important. So self-efficacy is the ability to feel like you're in control of your headache disorder. So when we did our small pilot study, we did qualitative interviews, where we asked people, "What did you experience?" And then we analyzed those for themes that came out. And what we found is that people felt like they were more in control of being able to know what to do and how to deal with it. And migraine is a condition with attacks that come out of the blue. By its very nature, it makes people feel out of control. And so giving people an opportunity to learn something that will enhance their ability to feel in control of their headache disorder is powerful. Now on the flip side of this, what's very important to recognize is that sometimes by telling people you have control — that you can do things and change things — it makes people feel at fault when they have a migraine attack, that they didn't do enough to prevent it, that they did some trigger that set it off. And what's really important to recognize is that we think of migraine as a neurobiological condition, most likely with genetic causes — meaning people with migraine are genetically predisposed to have them. And there's things that we can do to decrease the likelihood of having them. But sometimes no matter everything you do, you might still get a migraine attack. And part of practicing mindfulness is an acceptance of that without the blame and the guilt. But in telling people, "Oh you have control," you have to pair that with saying, "But sometimes, no matter everything you do, you still might just get a headache and that it's just going to happen." But we want you to be prepared and know how to be able to respond to it when you do.



Carl Cincinnato (23:58): One of the things that I realized after meditating for some time was that my attacks got better as I got better treatments, but the psychological torment of an attack remained a 10 out of 10. And this was long after my pain, after an attack, had dropped to below five. And I only realized that when I was meditating, and meditation and mindfulness helped to bring down that level of anxiety and the catastrophization — that's like, you know, "Why now? You know, how am I going to catch up on everything else? What am I going to say or do?" And it took a while to realize that.

Dr. Wells (24:33): Ah, yes. So you brought up so many points that are just fantastic. So first, you brought up the idea of pain catastrophizing. So I want to expand on this point because it's a very important one. The idea that when you experience pain, your thoughts that then come into your experience that can negatively impact that experience. So specifically, I like to give the example of a college student: They're studying for a final exam. They start to feel the onset of a migraine attack. They think, "Oh no, I'm not going to be able to finish studying for this final. If I don't study for this final, I'm not going to pass this class. If I don't pass this class, I'm going to flunk out of college. If I flunk out of college, I'm going to have to go talk to my parents. And they might start arguing. They could end up getting divorced."

Dr. Wells (25:18): And so the thought of the beginning of a pain leads to the thought of flunking out of college and your parents getting divorced. And I mean, that's an extreme example, but this idea of pain catastrophizing: "Here it comes. Oh, no. How am I going to help it?" And on the other side, there's also something called anticipatory anxiety of the anxiety that's associated with the anticipation of a migraine attack happening at any time. And what's fascinating when we think about pain and mindfulness, is recognizing that pain is a multidimensional experience. And so there's this beautiful concept in the Buddhist tradition of two arrows. And so you get struck by two arrows and one arrow is analogous to the sensation of pain. The second arrow is all of the thoughts and feelings and emotions that then are on top of that sensation. And so what mindfulness tries to do is tune in that you may still have that sensation, you still might have that arrow, but let's take away that second arrow.

Dr. Wells (26:25): And so the concept that there's pain and then there's the suffering that's associated with that pain; and the suffering often is associated with our thoughts and our feelings attached to the sensation of pain. And another way to think about this is the difference between pain intensity and pain unpleasantness. And so pain intensity is the sensation of pain. It's like you're listening to a radio, and how loud is the sound? That's the intensity. But the unpleasantness is whether or not you like it, or how unpleasant. So it's like on that radio, do you like the song on that radio? And they're directly connected. If you don't like the song and it's turned up really high, it's going to be a very unpleasant and intense sensation. But they can also be decoupled. And that's one of the things that we hypothesize mindfulness does, is it decouples the sensory component of pain from the affective or emotional and cognitive component of pain.

Dr. Wells (27:21): And this has been demonstrated with research, with individuals who applied experimental heat pain and asked to rate the intensity and unpleasantness. When they're taught to meditate, the unpleasantness decreases more than the intensity decreases. So it may affect both. And so it's really powerful to recognize this multidimensional component of pain, and how all these different pieces may affect it. And then when we're talking about the brain, it directly relates. Because when we think about the brain and pain, let's pretend just to sort of give an example, that something happens to your hand. You have this painful sensation. You touch something on your hand or you



experience pain in your hand, and that sensation goes to your brain, and it goes to the thalamus, which is the relay center for pain. And then it spreads to different parts of the brain.

Dr. Wells (28:15): So you have what's called the ascending, or the things that are coming from the bottom up, going to the brain —that sensation. But then you have the frontal lobe and other parts of the brain that play a role in how that pain is perceived — the thoughts, the emotions that are relayed. And so we think that mindfulness can change those areas of the brain to have a top-down regulation of these sensory ascending fibers that are coming up. And so it's this interesting interplay between understanding that yes, the sensation is there; but how that sensation is perceived is influenced by thoughts and feelings and emotions.

Carl Cincinnato (28:58): We learned last year from a sleep expert that having a good night's sleep or having a poor night's sleep can actually affect how you experience the pain the next day. And it sounds like mindfulness meditation also has that same capacity to almost modulate pain.

Dr. Wells (29:14): Yes, yes. So, pain is an experience with different features to it: the sensory, the cognitive, the affective, the intensity of the pain, the emotions, and the thoughts that arise with it. And that experience can be increased or decreased, based on all of those factors. And so it's really powerful to recognize that pain is a perception, and how we perceive that pain is influenced on all those levels.

Carl Cincinnato (29:42): When should someone with migraine consider mindfulness meditation?

Dr. Wells (29:48): So, first there really has to be an interest. So, probably anyone who's watching this interview probably has some interest in mindfulness, which is I think is very important, because unlike a medication that you just pop in your mouth, this is something that takes time, and energy, and effort. There's a multitude of different ways that people can learn about mindfulness and meditation. There's lots of apps, there's lots of books. There's YouTube videos. I often recommend to my patients of taking a class with an instructor so you can get some feedback and insight. One of the things that's unique about learning to practice mindfulness meditation is that often, initially, there's an increase in stress, because as you become tuned in, all of the things in your life that you've just been sort of on autopilot and doing, all of the sudden you become aware of it.

Dr. Wells (30:40): And so sometimes you become aware of how much stress is in your life, and that increases your stress because now you realize how stressful your life actually is. And so recognizing that, and being able to be accepting of that, and then learn the ways of how to move forward through that is very important. Because initially, if you start feeling more stress when you're practicing something and you think it's because of this new practice, you're going to stop doing it. And so, the practice of mindfulness is important to sort of be able to continue through that, to get on another side. And that's one of the interesting things about mindfulness: It's so distinct from most other psychological practices or recommendations in the past, like distraction or other things, is that the idea with mindfulness is not to turn away from the pain, but to turn towards it, but with an attitude of acceptance and curiosity. So when you experience that pain, you don't try to flee it, or fight it, or just be distracted, but you actually turn towards it and say, "What does it feel like?" And that's one of the most powerful awarenesses, that you don't have to avoid it. It's there.



So, "What is that sensation, and what emotions am I experiencing from that? And how do I relate to that? It can be very powerful.

Carl Cincinnato (31:58): One of the things that I experienced earlier on was that I would just have these racing thoughts, and so I would sit still, and my mind would just race, and like with all different types of thoughts, and it was hard to kind of quiet the mind. And that was difficult and sometimes frustrating. And I think a lot of people experience that. But what advice would you have to those people who've maybe tried it and just found it a stressful or frustrating experience?

Dr. Wells (32:23): Yes. So that's a great question. So, one recommendation would be to make sure that the practice that was tried was given enough time and energy to really assess if it is something. And then to actually talk to someone who is an expert about your experience. But the other thing that's important to recognize is there are a multitude of different practices. And so mindfulness meditation is one of a multitude of different mind-body treatment approaches that all can be potentially helpful: yoga, Tai Chi, Qigong — there's a multitude of different mind-body practices that, potentially, some people may be more or less drawn to one than another. And that's what's beautiful about this is it's not a one-size-fits-all, and there are so many different options that are available.

Carl Cincinnato (33:09): One of the things that I've started telling myself as a little bit of a trick almost, is to — if I don't feel like meditating in a particular time or day — I'll just say, "Just take three deep breaths." And often, that little micro commitment can have me just sitting down, and often I will do the full practice; but sometimes I'll only do the three, and I don't pressure myself that way. And I'm almost able to make myself a little bit more compliant when I need to be.

Dr. Wells (33:34): That's so beautiful. I mean, that's a great idea. I need to start telling my patients that. But it's also tuning in and accepting where you are right now. And we are so trained to judge ourselves, and to be critical of ourselves, and to say, "You're not doing it right," and, "You're not doing it good enough." And, "Only three breaths? Really?" You know? And so recognizing, as practice of mindfulness, of acceptance. And that's OK. And know just, "Whatever I need to do right here and right now, you know, it's OK and that's what I need." And being tuned in and giving yourself that space is one of the things probably that your mindfulness meditation practice has enabled you to do, where when you didn't practice that, you probably would have been critical of yourself and said, "No, if I can't do the full thing, then it's not good enough."

Carl Cincinnato (34:25): Why isn't meditation already mainstream, and why are we still learning some of these things in research? Why isn't this already out there?

Dr. Wells (34:33): Yes, so this is an important idea. So, I think one thing that's interesting is that it is something, I mentioned, that takes time, energy, and commitment. And we have busy lives, and it's very hard. And so recognizing that and trying to understand ... This is one of the questions that — in research, we have a lot of questions remaining about mindfulness — is, what is the dose needed? Like you said, three breaths. Is it three breaths? Is it five minutes? Is it 20 minutes? Is it once a day? Is it twice a day? Is it once a week? So we have all of these questions about what's the appropriate dose because that's one of the key questions, is, how much do I need to practice to get the benefit that I need? And we don't have that data yet to know for sure exactly what it is.



Dr. Wells (35:20): But I think in addition to being a time and energy commitment, it is something that, unfortunately, some people are turned away from because of the idea that by agreeing that this may be something that is helpful, also states that migraine is all in the brain, or all in the head. "Oh, it's just all in the head." And in reality, we know that migraine is not just a psychological condition; it is a neurobiological condition that, like I said, we think is genetic. So it's not all in the head, but some people may be turned away from it because they think, "If I agree to that, then I am saying that it's just all in my head." And on the contrary, this mind-body practice demonstrates that we think it's not just all in your head, but there's factors that are feeding it that we can play a role in.

Dr. Wells (36:11): And so, some people may not just believe in it. It's also something that is, you know, whether you call it Eastern, nontraditional, alternative ... a lot of scientists think it's not rigorous enough. And that's one of the things that's so beautiful about the research that we're doing now, is that we're trying to hold it to the rigorous standards of traditional pharmacological research, and Western research. And it's very challenging because in pharmacological studies, there's a natural placebo; you can give a pill that does not have the active ingredients, but to create a control group with mindfulness research that is able to match the time, energy, and attention on all the nonspecific factors that are also associated with learning mindfulness in a group setting, for example. It can be challenging to not have that control group be so active that it's its own intervention. So, in fact, most mindfulness research now is actually having to be conducted to a comparison group, like two active control conditions, and how are they different, and what's the effect, but also what's the mechanism?

Carl Cincinnato (37:25): Are there any unwanted side effects or risks that people should be aware of?

Dr. Wells (37:29): Yes. So, I think when we talk about unwanted side effects, being tuned in, that it takes time, energy, and attention, and concentration, and focused effort is important. Also, it's important to recognize that there are some very rare side effects reported that are negative in people, such as inducing psychosis. The rare facts that has been seen in, often are in people with the prior history of psychiatric condition that's not currently being managed or treated. So it's important to recognize. With this research that's been done so far, specifically in the migraine data there have never been any major adverse events reported, but in the entire meditation data and literature as a whole, very rare reports of that. But being aware that that can happen.

Dr. Wells (38:21): And then the other thing that I think is important for people to be aware of is, like I mentioned initially, it can increase stress. And being tuned in to that, that it may not just be purely stress reduction, at least initially, until the practice is more incorporated into a person's life. So, mindfulness now, it really has become a buzzword. And the media has really promoted a lot of mindfulness and as almost a cure-all to everything. And at this point, we don't have the data, especially within migraine to say it can cure migraine disease or it's the only thing you should ever do to treat your migraine. I think it could potentially be an important part of a treatment plan, of an entire treatment plan, but not just the only thing to consider.

Carl Cincinnato (39:08): I have to say, in my experience, I've gone from chronic migraine to episodic. Meditation didn't get me there, but I can firmly say that: mindfulness meditation didn't get me from chronic to episodic, but it did play a significant role, and certainly it's improved the quality of my life and the enjoyment in my life as well. It is one for me that I



would say is a ... secret weapon against migraine. And I think it can be a tool for a lot of other people out there. Of many tools that can be used to help manage their condition and give them, as you said, that self-efficacy — that sense of control over what is a very difficult experience.

Dr. Wells (39:48): Right. Absolutely. That's wonderful. That's great. I'm so glad that it's been so helpful for you. And that's one of the things that's important to recognize about migraine is that probably most people have migraine attacks across their lifetime and so it's something that's going to happen. And so being able to live the fullest life that you can, despite that, is what we want for all people living with migraine; and for everyone with migraine, is that we want people to enjoy their lives. And so having something, that despite having this condition that may happen at any time, that you have something that can allow you to continue to enjoy your life is so important.

Carl Cincinnato (40:24): So, for people that want to give it a go, to try it — before we go, can you tell us or give us some tips on how people can get started?

Dr. Wells (40:33): Yes. So I mentioned that there's so many different ways that you can try in terms of apps online, programs online, there's books that are written about it. And then local classes. And I think local classes ... I recommend finding someone, or finding someone who wants to start out with you so you have an opportunity to discuss what you're experiencing. Because one of the things that's important about this is that it's not just, OK, five minutes once a day or 15 minutes twice a day, or you know, some sort of prescribed amount. But it changes the way that you perceive and relate to yourself, to your thoughts, into your world. And when you're going through an experience that can be that transformative, having other people to talk to, to bounce ideas off of, to have dialogue and inquiry is really important. So I highly recommend having that opportunity to engage with other people who are interested, because it's not just this simple fix. It's changing the way we relate to ourselves and to the world. And that's so important.

Carl Cincinnato (41:39): Well, I feel like having a meditation session right now after this. So thank you so much for spending time with us and sharing your insights on mindfulness meditation. It's been a reaffirming experience for me. And thank you again for spending your time.

Dr. Wells (41:53): You're welcome; it's been an honor. I'm really excited to be here today.