



MIGRAINE WORLD SUMMIT

INTERVIEWS WITH WORLD-LEADING EXPERTS

# TRANSCRIPT



**MINDFULNESS FOR MIGRAINE & PAIN RELIEF**

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**Introduction** (00:05): My focus is really in terms of how we can have nonpharmacologic treatments that are accessible to people. And so, I like that if people learn the practice, they can do it on their own, and they're not dependent on other teachers or going in for procedures and so forth. They have their tools as part of their toolkit. And so, I don't think, you know, you need your teacher, per se. And that's part of the reason we're doing the research that we're doing. Like, can you learn this through a smartphone or some other mechanism even?

**Paula K. Dumas** (00:37): If you're breathing now and have a minute to stop what you're doing and observe how you're feeling, you are fully qualified to try mindfulness. And guess what? Researchers say it could have a profound effect on your physical and mental health, including migraine and headache disorders. Smartphones have placed mindfulness apps two clicks away from most of the people watching right now. If you're curious about how mindfulness can help relieve pain and where to get started, join us for an in-depth conversation with one of the leading researchers in this emerging space. Dr. Mia Minen is an associate professor of neurology at the NYU Grossman School of Medicine and the director of Headache Services. She has served as a board member of the American Headache Society and trains neurologists and psychologists on behavioral therapies for migraine. Dr. Minen, welcome back to the Migraine World Summit.

**Dr. Minen** (01:31): Thank you so much for having me here today.

**Paula K. Dumas** (01:34): Well, you've been doing a lot of work in mindfulness, including both an NIH-funded study of relaxation and another one on mindfulness-based cognitive therapy. What are the goals of these two studies?

**Dr. Minen** (01:47): So glad that you asked. So, first of all, we know that these nonpharmacologic therapies are pretty safe overall. There can be long-term benefits, and so my goal in doing research is trying to figure out both how much they work in the dosage, but also how do we get these in a scalable, accessible manner to people out there. There are so many people who suffer from migraine, over 47 million Americans, and so it's really hard for them: There's such disability, medications can be costly, medications can have a lot of different side effects. And so, I'm really interested in exploring different options in terms of these nonpharmacologic treatments. And so, there are two NIH studies, like you just mentioned, that I'm involved in. And the first one is a smartphone-based relaxation study. So, it's basically taking an evidence-based — a top evidence-based — treatment, progressive muscle relaxation, putting it into a smartphone where we can then have people, you know, do the progressive muscle relaxation on their own, in their own time, learn the skills, so then they can then adapt it to everyday life.

**Dr. Minen** (02:53): And so, that's one of the studies. We've been studying it actually in all different kinds of settings. We've studied it in primary care, the emergency department, within neurology. The NIH-funded study that we have been doing, most recently, is the emergency department. The other NIH study is focused on mindfulness-based cognitive therapy. And we know that cognitive behavioral therapy — which I think I'll be mentioning a little bit later — is also one of the top evidence-based treatments for migraine prevention. The thing is, is that mindfulness is super popular right now, right? So many patients come to me, and they say, "Oh, but Dr. Minen, why do I need to do cognitive behavioral therapy or relaxation? I'm doing mindfulness." And so, there is this, you know, treatment called mindfulness-based cognitive therapy — it was initially developed for depression relapse, actually — and so we're trying to study what are the different modes in which we can deliver it to patients. Is it best done in a



group virtually or telephone-based, and, you know, how can patients benefit from this mindfulness-based cognitive therapy? So those are the two studies we're currently doing.

**Paula K. Dumas (04:00):** Very cool. I think people are naturally very intrigued in behavioral therapy and just don't know quite about how to integrate it into their overall treatment plan. So, what I want to do is to kind of separate mindfulness from some of these others so people understand each one and can consider what might work for them or not. The American Headache Society has four guideline-recommended behavioral therapies for migraine. You mentioned cognitive behavioral therapy and relaxation therapy. Tell us about each one and whether mindfulness might become the fifth one.

**Dr. Minen (04:38):** Great question. So, there are four different ones, like you said. The one that people have heard of the most oftentimes is the cognitive behavioral therapy. And that's basically been used for depression, anxiety, insomnia, but it's also top evidence-based for migraine. And basically, patients learn how to redirect the pain pathways so that they're not focusing so much on the pain. They've actually done neuroimaging studies, which have shown that there are structural changes to the brain before and after the therapy, after the cognitive behavioral therapy. So that's one of them.

**Dr. Minen (05:11):** The other one, one of the other ones is called biofeedback, and that can take many different forms. There's thermal biofeedback, there's EMG biofeedback — so like a muscular biofeedback — there's heart rate variability biofeedback. And basically, a patient is hooked up to various sensors where they can learn how to change their muscle tension; how to change the temperature of their skin, called the galvanic response; or how to change their breathing patterns to then change the pulse and then potentially cortisol levels and so forth.

**Dr. Minen (05:43):** So, we've actually also studied heart rate variability biofeedback, also in the form of a sensor attached to an app. We published that study. So, that's biofeedback. And then the other one is lifestyle modification. So, what do I mean by that? So, that's where we talk about sleep hygiene — going to bed at the same time every night on weekends and weekdays, getting up at the same time. Making sure that you're hydrating — that you're remaining — you know, eating on schedule. That's also talking about exercise. Exercise actually has been proven — aerobic exercise has been proven to have good evidence just as much, you know, benefit in terms of some of the medications that we use out there. So that's that last one, the lifestyle modification.

**Paula K. Dumas (06:27):** So, you mentioned lifestyle modification, and the SEEDS model is really powerful. I've used it myself. And your colleague, Dr. Lawrence Newman, actually has a talk on SEEDS that's on an earlier year of the Migraine World Summit that people can check out. One you didn't mention specifically: relaxation therapy. How is that different from these other behavioral therapies?

**Dr. Minen (06:51):** Oh, great. So, relaxation therapy is basically where you learn how to tense and relax individual muscle groups so that over time you're more relaxed. And so, oftentimes people will carry their tension in different parts of the body, and this is to relax the physiologic response over time.

**Paula K. Dumas (07:08):** OK. So, these four therapies are all sort of approved for efficacy by the American Headache Society as a guideline-recommended treatment. And all this research that's



going on with mindfulness right now might make mindfulness potentially a fifth option for certain people or therapists, is that right?

**Dr. Minen (07:29):** Yeah, so I think that mindfulness is definitely emerging as an evidence-based treatment. We're still really trying to better understand it, how it works, the dosing, the frequency. I think that there are, you know, some great researchers out there who are studying it for migraine and studying it in the form of mindfulness-based stress reduction. So, Dr. Rebecca Wells at Wake Forest has been studying that, in addition to the mindfulness-based cognitive therapy that the team — including Dr. Betsy Seng, Dr. Amanda Shallcross, also Dr. Rebecca Wells, and Dr. Richard Lipton — and I are all working on. There are other doctors too, Dr. Siminovitch and Dr. Day, who have also looked at some of these treatments.

**Paula K. Dumas (08:13):** Very cool. So, just define for us, if you would, mindfulness and how it's different from meditation or other behavioral therapies.

**Dr. Minen (08:23):** So, mindfulness was really, came about from, Jon Kabat-Zinn back in the 1990s. And so, he defined mindfulness as awareness that arises through paying attention on purpose to the present moment in a nonjudgmental way. The difference is meditation is a practice: It's a practice where an individual uses a technique to train attention and awareness, and it's to achieve a mentally clear and emotionally calm and stable state. So, you can have mindfulness meditation, but there are different forms of meditation.

**Paula K. Dumas (08:59):** So, if I'm understanding you right, mindfulness is just one of many different meditative practices. Is that right?

**Dr. Minen (09:05):** Correct.

**Paula K. Dumas (09:06):** OK. And it's more about the quality and awareness than it is about a practice, per se.

**Dr. Minen (09:14):** Exactly. So, mindfulness is a quality, and meditation is a practice, I would say.

**Paula K. Dumas (09:19):** How did you become interested in mindfulness? Are many of your patients trying this already, or is it something you do yourself?

**Dr. Minen (09:26):** So, a great question. So many of my patients would come in and say, "Well, Dr. Minen, why are you saying I need to do relaxation? I do meditation all the time." And I would say, "Well, relaxation has top evidence-based for migraine prevention, but we really don't know much about meditation at this point." And so, in fact, I decided to go get training in mindfulness-based cognitive therapy. As I mentioned earlier, it was developed by Dr. Zindel Segal. He developed the mindfulness-based cognitive therapy by combining the cognitive behavioral therapy with the mindfulness from Jon Kabat-Zinn. And so, I got training in the mindfulness-based cognitive therapy because I wanted to see: Could this be helpful for our patients? And then we also, you know, decided to study this. And so, we initially had conducted a pilot study and then we sought NIH funding to try to see is mindfulness-based cognitive therapy something that should be an evidence-based practice for our patients, and also, how would it best be delivered for them?



**Paula K. Dumas (10:27):** Now, pain is a pretty complex thing, you know: It's this nasty storm of physical, and emotional, and social sensations. How does mindfulness help reduce the suffering if the pain itself is unchanged?

**Dr. Minen (10:43):** You know, it's an interesting question for which we're really doing a lot of study right now, and they're doing neuroimaging studies to try to see what parts of the brain changes with the mindfulness-based stress reduction, mindfulness-based cognitive therapy. We do know at this point that patients' quality of life improves with mindfulness-based cognitive therapy and also with the MBSR, the mindfulness-based stress reduction. We're still trying to understand physiologically how it works, and how it may cause changes within the brain, just like we do know that cognitive behavioral therapy does cause changes within the brain.

**Paula K. Dumas (11:22):** Well, we all want to know how it works, but ultimately if it works, we're pretty happy, so .... One of the people in our community, Megan, asked a question that I think you may have just answered, but she says: How does meditation, that is focusing away from stressful thoughts and perhaps into a more observational mindset, help to reduce headaches and migraine?

**Dr. Minen (11:44):** So, as I mentioned, we know that it can help improve quality of life in people who have migraine. We're still trying to understand how it might help headache days. So far, the research has shown that it's more helping to improve quality of life than actually reducing headache days, but I think that in terms of looking at what we call patient-related outcomes or clinically important outcomes for patients, I think quality of life is so important. So, I think that this is really promising treatment for our patients.

**Paula K. Dumas (12:16):** You mentioned Jon Kabat-Zinn. He was the father of mindfulness-based stress reduction or MBSR, and that is one of the most widely researched practices, right? But it doesn't promise pain reduction. It's about uncoupling the actual physical sensations from the response to that pain. So how does that help us to suffer less?

**Dr. Minen (12:39):** It's a great question, and that's actually the work of Dr. Rebecca Wells at Wake Forest. She's done a lot of work on MBSR and migraine, and she has found that MBSR does help improve quality of life. And she's actually been looking at the mechanism to try to determine how it may change the response to pain. So, I'm really excited to see how her research emerges, because this is really her whole career.

**Paula K. Dumas (13:06):** Fantastic. Well, which pain conditions have the most research to date on MBSR?

**Dr. Minen (13:14):** So, there's a lot of research for back pain, for fibromyalgia, musculoskeletal pain, and obviously now we're studying it for migraine.

**Paula K. Dumas (13:23):** So, one research study that you coauthored indicated that mindfulness is more effective for episodic migraine relief than chronic migraine. I'm curious: Why do you think that is?

**Dr. Minen (13:33):** You know, I was thinking about it when I was doing the mindfulness-based cognitive therapy training, and I actually spoke to Dr. Zindel Segal and said to him, you know, "I understand you developed this for depression relapse, but what about for depression?" And he was very clear that the MBCT, the mindfulness-based cognitive therapy, is for relapse, more of a



maintenance kind of treatment, than for somebody in a real state of depression. And so, I think if you translate that for migraine, I think that we know, for example, cognitive behavioral therapy is top evidence-based for migraine prevention. So that's if somebody's in a pretty bad state — or not, actually— even if somebody isn't. But I think that the mindfulness-based cognitive therapy can also maybe serve as a maintenance therapy so that after one may have been through cognitive behavioral therapy, to then do MBCT might actually be helpful.

**Dr. Minen (14:33):** And so, thinking about the frequency — you're asking about episodic versus chronic — I kind of think of the chronic migraine as being more of that depression state and potentially the episodic migraine being in a little bit lessened state. Not to belittle episodic migraine by any means — people suffer so much from episodic migraine; it is extremely debilitating. So, I don't mean that at all. But I'm just thinking why would there be a difference between episodic and chronic? And that's kind of what I've come up with. Maybe it's more for maintenance as opposed to that really severe state at a given time.

**Paula K. Dumas (15:14):** Yeah, I think that's one reason why we always have a topic each year with different experts addressing, you know, how to get out of chronic migraine. Because I was in chronic migraine and now I'm episodic. It is incredibly difficult, but your brain is in a very different state when you're in chronic — it's sort of never resetting — whereas when you're in episodic, you go in to and out of attacks, and mindfulness could be one of the many things that we do — habits if you will — that we do all the time to keep from moving back down the chronic scale. Right?

**Dr. Minen (15:48):** Yep. Exactly.

**Paula K. Dumas (15:50):** So, I was curious to learn that you're doing some research on a new app that's designed just for migraine and headache patients. What do you hope to learn with that?

**Dr. Minen (16:00):** So, the app is called RELAXaHEAD. It has an electronic headache diary and the progressive muscle relaxation. What's really neat about it is that it has back-end analytics to capture the amount of time spent that people are playing the progressive muscle relaxation. So we can therefore determine how much, you know, dose and the frequency that they're doing the progressive muscle relaxation through the app to then see how that affects the outcomes. So, how much progressive muscle relaxation does someone need to do in a given week or for how many minutes a day or, you know, per week, does someone need to do it in order to see outcomes — improvement in their headache days or their migraine-related disability? And so, we've been using this app and studying it, and we're finding really positive outcomes so far in terms of, if patients use the app and specifically do the progressive muscle relaxation, there can be reductions in headache days and also reductions in the migraine-related disability — and pretty incredible decreases in migraine-related disability that we're seeing so far.

**Paula K. Dumas (17:08):** We'll stay tuned on that, and if there are any updates, we want to add those below your talk. So, Grace asked the question that's kind of on everybody's mind, which is basically: How do I put this into practice? How and when can I be mindful? And so, in our research for this talk, we looked into a number of different mindfulness models, and a lot of people who watched the Migraine World Summit in 2017 might remember our interview with Vidyamala Burch. She was the author of *Living Well with Pain and Illness*, and she had this five-step mindfulness model. It was awareness, move toward the unpleasant, seeking the pleasant, broadening your awareness to the whole, and then learning to respond versus react. And then my friend, Shirley Kessel, has one she calls CARE, which is to check in, allow, respond, and



embody. And then I've read about another one called STOP, which is to stop, take, observe, and proceed. What do you think of all these models?

**Dr. Minen (18:10):** I think they're great. I think, you know, really try it out. See what works best for you. I think practically speaking, there are really simple ways in which people can integrate these practices into their daily life. So, when someone takes a basic mindfulness class, oftentimes they're introduced to the raisin example, for example: So, people are given this one little raisin, and their eyes may be closed, the raisin is put into their fingers, and they're asked to just feel the raisin for a really long period of time. They're just feeling the texture and so forth. And then, they're very slowly bringing the raisin to the nose and taking in the scent of the raisin and exploring that. And then bringing it to the mouth and exploring what kind of sensation occurs when the raisin is touching the lips. And then of ultimately putting in the mouth, not chewing it, seeing what happens with saliva and taste buds and so forth.

**Dr. Minen (19:11):** Then exploring chewing movements, and then the swallowing movements. And I think that this example really exemplifies how you can integrate mindfulness into everyday life because you can integrate it just with something you're eating for breakfast or lunch, anything like that, right? Another example would be there's mindfulness, mindful walking, right? So, you can just take a few minutes on your commute to work, even just walking the hall in your apartment or house, and you can just think mindfully about something, you know, about your walk, about the movements of the body, about your breath, right?

**Dr. Minen (19:58):** And then, if you even want to pair that further, as I mentioned before, we know that exercise — aerobic exercise — is helpful for migraine prevention. So, you can even do mindfulness-based aerobic exercise. So, I think that you need to really just think about what you're doing in your everyday life and try to pair it with something that you're doing. You could even do some mindfulness-based practice when you're brushing your teeth. So, I think it really depends on trying out some of these different approaches that you mentioned that can be super helpful in figuring out where it fits in with your everyday life and something that you're behaviorally activated, like something you're really doing on a daily basis.

**Paula K. Dumas (20:40):** Yeah, like I know I'm going to eat a few times a day. I know I'm going to walk pretty much every day. You're telling me, don't have my earbuds in and zone out and listen to my favorite podcast. You're saying, take a walk and maybe take in nature, see how I feel, you know, tune into everything around me, that type of approach. Right? The stop, take, observe, proceed.

**Dr. Minen (21:04):** Exactly.

**Paula K. Dumas (21:06):** Yeah. Cool. Well, I think if I ate mindfully, I'd probably eat a little less, too. It wouldn't be a bad idea. So, do we need to be seated in a quiet space to practice mindfulness? I mean, some of the examples you gave us were not exactly quiet, like, I can't imagine aerobic exercise, but OK. Can we do this at a stoplight in our car or in the middle of a busy workplace?

**Dr. Minen (21:32):** For sure I think you can do it in all kinds of places, including the busy workplace. Technically speaking, you can do it at the stoplight of the car. I'm not sure I would actually recommend that because I do want you to be focused on your driving and not wind up in an accident, but short of that, I think you can do it in almost any place.



**Paula K. Dumas (21:52):** Yeah: “Well, officer, I was just having a mindful moment,” right? Probably not. What about apps? I've seen a number of different apps out there. I actually subscribe to one of them. Which ones are you familiar with that people might want to check out?

**Dr. Minen (22:08):** You know, there are different apps out there. I don't really like to promote any specific one. I tell patients that they can try different ones out. I know that Calm and Headspace, for example, are two of the most popular ones, and so there's a little bit more publicity and press and maybe some research. There's Insight Timer, Glo ... but I really think that patients can, you know, go and try different ones and see what works best for them. I think everybody's a little bit different in terms of what their needs are and so forth. So I tell patients, you know, I don't really want to recommend one particular one, and we don't really have one specific for migraine. We just have RELAXaHEAD, which is for the progressive muscle relaxation; there are ones for biofeedback that have been developed now as well; but in terms of mindfulness, we don't have like a migraine-specific one to really recommend so much. So I say, just try some different ones and see which one works best for you.

**Paula K. Dumas (23:09):** Yeah, I think one of the challenges is making something like this a daily habit so you really get the benefit from it. And I've been doing some research on this. There's a great book, *Atomic Habits*, and you mentioned like the behavioral activation, like linking it to teeth brushing or to breakfast or something like that, to a meal. Any other tips on making it a daily habit?

**Dr. Minen (23:35):** So, one tip would be to actually sit down, and you could actually make a list of all the different things that you typically do in a given day, and then see which you might want to pair that with and then try it out. But it's hard. I think it takes time, and I think part of it is to not be frustrated if you don't get it the first, second, or third time. It definitely can take time, and that's OK.

**Paula K. Dumas (23:59):** Dr. Minen, I imagine that some individuals, as well as some clinicians and hospital systems, might be interested in RELAXaHEAD. Is there any way they can get access to it right now?

**Dr. Minen (24:12):** Yeah, so currently the RELAXaHEAD app is available in the app stores for both Apple and for Android, but only for research participants. That said, there's definitely already the built-in capability of RELAXaHEAD to be linked with Epic, one of the largest electronic medical record systems. And so, there's capability for physicians to digitally prescribe it to patients, and even do remote monitoring to see the patient's headaches in terms of the headache diary, and even see the relaxation that's being done, and be able to discuss all of that at office visits, as well.

**Paula K. Dumas (24:50):** OK. You know, we always talk about risk, and I can't imagine there are any risks associated with mindfulness practices, but I'll ask anyway. Are there?

**Dr. Minen (25:02):** It's considered pretty safe. I will say that if somebody has a history of trauma — and a fair number of patients with migraine, particularly chronic migraine, do have a history of some sort of trauma — there is a risk of flooding, so emergence of prior memories and so forth. So if that happens, we usually say to stop the practice, and you can always speak with, you know, a healthcare provider, but so there is a risk of flooding. And then also it can bring up, you know, some abnormal sensations that are occurring within the body. It's making you more





mindful. So you need to just be aware of that. But, aside from that, it's considered pretty safe, so long as you're not, you know, just doing it at the, behind the wheel of the car and not focusing on the traffic around you.

**Paula K. Dumas (25:49):** There we go. There's your tip for the day. You know, some people object to mindfulness because they say, "Oh, you gotta have a yoga teacher or a paid app to do it, and that limits access." Is that true?

**Dr. Minen (26:01):** You know, my focus is really in terms of how we can have nonpharmacologic treatments that are accessible to people. And so, I like that if people learn the practice, they can do it on their own, and they're not dependent on other teachers or going in for procedures and so forth: They have their tools as part of their toolkit. And so, I don't think you need your teacher, per se, and that's part of the reason we're doing the research that we're doing: Like, can you learn this through a smartphone or some other mechanism, even?

**Paula K. Dumas (26:35):** We learn a lot from our smartphones. So where are we going next with mindfulness therapies and research?

**Dr. Minen (26:43):** So, I think it's a great question, and there's a lot of interest in further research. I think a lot of questions really remain unanswered. First of all, what is the dosing that needs to be done in order to see clinical benefit, right? So how much does someone have to practice this or integrate it into their life? I think in many ways it's really about integrating in life. It's not even about, "OK, you need to spend 10 minutes or 60 minutes in a given day." It's really, how do you relax the body or make yourself more mindful in those situations where there may be higher stress so that you can overcome the stress and be more present and so forth. So how do we figure out the dosing so that then people can integrate it in their everyday lives, right — so in terms of minutes, in terms of the frequency. Also really trying to understand, how do we teach it to people? Like you just said, do you need teachers, right?

**Dr. Minen (27:39):** So, can this be delivered, and I mean taught and delivered, virtually through a Zoom kind of platform? Can it be done via the telephone, can it be done via smartphone app, or does it need to be in person? What's the difference in effectiveness if it's taught individually versus if it's taught group-based? Because, for example, mindfulness-based stress reduction and mindfulness-based cognitive therapy are often done in group-based settings, which are also more scalable and accessible for people, right? So, I think that's an exciting thing, but we still need to figure that out. And then also how do these things work, right? So, how is the brain affected? We know that there's different parts of the brain, and some of the mindfulness-based studies that have been done looking at changes within the brain structure, but what is going on exactly within the brain in terms of these changes? And I think some of this work is continuing and will be emerging. And I think it's a really exciting time for patients.

**Paula K. Dumas (28:38):** It is, it is. And so much potential for this space. If somebody wants to participate in one of the clinical trials or studies that are going on, what's the best way to do that?

**Dr. Minen (28:51):** So, you can look at [clinicaltrials.gov](https://clinicaltrials.gov) and put in "migraine and mindfulness" or whatever other term you want, to see what kinds of studies are available. It's a public database that's free, and then you could contact the investigators and see if it's something that's open for participation.



**Paula K. Dumas** (29:09): Excellent. Well, we're really interested to follow your research, as well as some of the others that you mentioned that are in the pipeline, and see if sometime next year we know more and can try more. And I hope everybody will be open to giving it a try since it sounds like the risks are relatively low. Dr. Minen, fascinating conversation. Thank you so much for your expertise and for your research.

**Dr. Minen** (29:33): Thank you for having me.