



# INTERVIEW TRANSCRIPT

DISCUSSIONS WITH WORLD-LEADING EXPERTS

## **A Whole-Person Approach To Overcoming Chronic Dizziness & Vertigo**

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**Introduction (00:05):** Many people think first of pain when they think of migraine, but for millions, the most debilitating symptoms aren't always pain — they're dizziness, vertigo, and a profound sense of imbalance that can really turn the world upside down. In our past summits, we've delved into the science of vestibular symptoms in migraine, and of course, vestibular migraine itself. But today, we're focusing on the question our community asks most — how do I cope?

**Introduction (cont.) (00:33):** We're joined by Dr. Yonit Arthur, known as Dr. Yo, audiologist and founder of The Steady Coach. She's here today to share some practical strategies for managing dizziness and vertigo so life can feel steady again. Dr. Yo, welcome to the Migraine World Summit.

**Dr. Arthur (00:52):** Thank you so much for having me.

**Nancy Wood (00:55):** I thought we could start out and look at what some of the symptoms of vestibular migraine — what some of those symptoms actually — how they impact the daily life of people who have vestibular migraine, and also people who have migraine with vestibular symptoms, and then get into your particular approach. So I just wonder, what kind of functional impact do you see? For example, daily use — computers, driving, exercising — how do you see that the vestibular symptoms impact daily functioning?

**Dr. Arthur (01:32):** Thank you. What a great question to start off with, and it's so important for people to understand this because it really frames the functional impacts in a way that helps people do some of the things we're going to talk about in a little while.

**Dr. Arthur (01:46):** So the reason vestibular migraine and migraine-associated vertigo-type symptoms — and other dizziness symptoms associated with migraine — result in such high impacts on people's lives, shall we say, is that the symptoms of dizziness aren't really just one symptom. There are many symptoms that affect multiple sensory systems.

**Dr. Arthur (02:13):** So when someone has dizziness, what that means is that their sense of orientation and balance is affected, and those senses require information from three sense systems — the eyes, ears, and sense of touch. So when something goes wrong in that sense of orientation and someone says, "I'm experiencing dizziness," what that person probably means is, "I have multiple symptoms that affect any or all of those three sensory systems." So they may have visual problems. They may have blurry vision.

**Dr. Arthur (02:49):** They may have difficulty tracking moving objects. They may have difficulty orienting when they're moving their head. They may have a sense of movement all the time. They may have rocking, bobbing, swaying. They may have vertigo. They may have balance problems. They may have heaviness in their limbs. They may not even feel their extremities. I could go on and on and on. Point being here, it has wide effects on people's lives because so many sensory systems are affected.

**Nancy Wood (03:17):** Well, and that leads in perfectly to: What kind of functional impact do you see on a daily basis? And as you've described it, these kinds of things would affect everything from using the computer to driving to exercising, and just coping, in what I would call multisensory stimulating environments, which, let's face it, there are lots of those.

**Nancy Wood (03:38):** Some people have lived with migraine for years and suddenly they find — so they've lived with migraine; that's been the diagnosis — and suddenly they find that dizziness



or vertigo becomes their main symptom. How is it that migraine patterns shift like that? What's happening in the brain when it crosses over into vestibular migraine?

**Dr. Arthur (04:01):** What's happening is, migraine processes can affect any area of the brain, obviously. And what's simply happening is that it's starting to affect areas of the brain associated with putting together those three sensory systems. So there's not just one area in the brain that is responsible for orientation. It requires integration or putting together information from multiple areas, multiple sensory systems.

**Dr. Arthur (04:29):** So if one or all of those areas are affected by the migraine process, it's completely normal for people to then experience dizziness and other vestibular symptoms.

**Nancy Wood (04:42):** Now, you're an audiologist by training. How did you come to work with migraine-related dizziness, and what unique perspective does an audiologist bring?

**Dr. Arthur (04:52):** Thank you for that question. So I began working with migraine-related dizziness out of necessity, I would say. So as an audiologist, generally people are trained to diagnose difficulties that people are having to try to identify the source of dizziness. And audiologists are actually also trained in the treatment of such syndromes or such symptoms. But in most clinical settings, audiologists don't do that. Usually we defer to the physician or we defer to physical therapy.

**Dr. Arthur (05:31):** The issue is that, as many of your viewers will know, the conventional treatments for these disorders sometimes don't provide people with the outcomes that they're looking for. And as an audiologist, I found that to be extremely frustrating. I felt that all of the training I'd received equipped me to look at someone a bit more holistically than I was able to in a more conventional setting. And I saw these patients suffering horribly, and it just didn't sit right with me.

**Dr. Arthur (06:06):** So when my own mom developed dizziness — she has a diagnosis of Ménière's disease, which often has quite an overlap with vestibular migraine, actually — that pushed me to start looking at it through a new perspective.

**Nancy Wood (06:21):** That's fascinating, and we'll get into that in a little bit more detail. Many in our community — for example, Charlie, who responded to one of our surveys — they describe constant dizziness and ask, "Where do I start?"

**Dr. Arthur (06:34):** I think the first thing that I would probably say to someone like Charlie is, "You are a whole person, and you need to be treated as a whole person, because I want you to have the best possible outcome." And the term that we usually use in the, I suppose, medical world, would be a biopsychosocial approach.

**Dr. Arthur (06:58):** So "bio" meaning we want to look at the biology of what's going on. "Psycho" usually refers to psychology, but what we really mean by that is stress, your own patterns of thinking, your patterns of feeling, maybe stressful things that have happened to you in the past. And "social" meaning the social environment you're in, current stressors, lifestyle, support from other people. All of those components need to be addressed for someone to have optimal outcomes.

**Dr. Arthur (07:30):** And I know that that can feel really big at first when you're also dealing with symptoms that often bring on brain fog, confusion, dissociation. So what I first want people to



know is once you have the diagnosis, you need to slow down and start breaking this down into step-by-step things that you can work on, one thing at a time. It's not just one thing that you're going to need to do to get better from vestibular migraine or dizziness associated with migraines.

**Dr. Arthur (08:07):** But you can absolutely get better from where you are today. Many people have done it. There's lots of hope for you. We just need to start where you're at and make one step at a time.

**Nancy Wood (08:20):** Let's just answer this one: Vestibular symptoms like dizziness and imbalance affect many people with migraine, even if they don't have the vestibular migraine diagnosis. How common are these symptoms? And what distinguishes vestibular migraine as a subtype?

**Dr. Arthur (08:38):** These symptoms are incredibly common, and we really don't have great numbers on this because many people aren't reporting this. They're not necessarily getting diagnosed with these kinds of symptoms or these kinds of disorders when they have them. But by my estimate, it's extremely common. And what distinguishes vestibular migraine is that people have vestibular symptoms that are associated with their attacks at least a few times.

**Dr. Arthur (09:08):** So this may mean a sudden attack of vertigo that arrives with the migraine or in the immediate aftermath of the migraine symptoms. Or it may mean that they have dizziness-related symptoms, which, as we described earlier, can mean a whole lot of different kinds of symptoms, but all pointing to the idea that, as we talked about earlier, something in the brain that processes where people are oriented in space is not using sense information the way that it should.

**Nancy Wood (09:41):** We are going to look at your framework for recovery, which I believe you were just touching on, and you talked about the work involved. But just before we get to that, what other things in the toolbox do you think are important? What other complementary things would you work on with your patients in terms of medical, behavioral, and lifestyle?

**Dr. Arthur (10:05):** I'm agnostic about medical treatments in the sense that I see people as whole people. And as I talked about before, treatment needs to be biopsychosocial. So if there's a biological treatment, like a medication that helps you, that's wonderful. And there's no reason not to have access to that while also considering looking at those psychosocial treatment options as well.

**Dr. Arthur (10:31):** Even though we're not going to talk about my specific approach yet, it's still useful to frame how I see treatment in general, because that also explains how some of these more complementary approaches can fit into the whole treatment approach as well. The way that I see it is: When you're dealing with a lot of stress in your life — symptoms, nonsymptoms, things that happened before the symptoms, things that happened after the symptoms — your brain starts to know that you're under threat.

**Dr. Arthur (11:08):** It knows, "Wow, there's a lot going on here that I need to respond to." I think of that as your stress bucket. Your stress bucket fills up with life stressors — symptom-related, non-symptom-related, etc.

**Dr. Arthur (11:21):** When your bucket is full of life stressors, we need to do things to take the life stressors out, because if your bucket is full, if your capacity is full, your brain's going to



continue to respond with alarm, and it's going to respond less well to symptoms, and it's going to respond less well to triggers as well.

**Dr. Arthur** (11:42): So we start by looking at what's in the bucket, and a lot of those things, Nancy, are really low-hanging-fruit lifestyle things like making sure we're going to bed at the same time every day and getting up at the same time every day; having a routine; making sure we're getting exercise; making sure we're moving; having a reasonably nutritious diet; making sure we're getting sunlight, fresh air, social engagement. Again, these are all very boring things. No one wants to hear me talk about this when they have vestibular migraine, but it's all relevant to the stress bucket.

**Nancy Wood** (12:16): Well, and it's good to hear that because, as you said, they're low-hanging fruit, so those can be achievable. And maybe you could walk us through your framework for recovery beyond that first bucket that you were talking about.

**Dr. Arthur** (12:31): The reason I like the stress bucket is because it really explains it all. So lifestyle things that are low-hanging fruit also relate to the stress bucket. We're taking things out of the stress bucket by treating our bodies well, but we also want to think about what stress might already be in that bucket and how we're responding to stressors — including symptoms, but not just symptoms — in ways that pour more stress into the bucket.

**Dr. Arthur** (13:01): And again, to frame this for people, when the bucket is full, the brain is in what I call — and I promise I'll explain this term — a state of threat appraisal. And what that means is, when the brain is under a lot of stress, it starts to interpret everything as more stressful. It's like it has a stress-colored pair of glasses on.

**Dr. Arthur** (13:29): So when someone has migraine triggers, when someone has migraine symptoms, the brain is going to automatically see those things as much more important, much more threatening than they are, when the stress bucket is full. So if the stress bucket is less full, the brain is not in a state of threat appraisal, meaning it's going to respond to those triggers differently, and it's going to even potentially respond to symptoms differently. In fact, with many of my clients, they just end up not having symptoms at all anymore. Or, if they do have symptoms, they're a lot milder.

**Nancy Wood** (14:08): That's very hopeful. And I think you're talking about neuroplasticity in a sense — the brain's ability to change and rewire itself. What would progress typically look like week to week when someone has started with your approach? How do you measure, and what are the realistic goals of the treatment?

**Dr. Arthur** (14:26): I'm hearing this question and just knowing that people who are listening to this are sometimes in the throes of the worst experience of their life. And so, the first question they have is, "When are my symptoms going to go away? Yonit, please tell me, how is this going to look? When's my progress going to happen?" Here's the tricky little thing about using a neuroplasticity-based approach.

**Dr. Arthur** (14:51): If you take an approach that's sort of like playing whac-a-mole with symptoms, like, "OK, gotta fix these symptoms; I gotta get rid of these symptoms," what does that do? It focuses your brain on the symptoms and triggers more. So then your brain says, "Threat, threat, threat; still appraising threat; there's still threat in these symptoms and triggers." That's the opposite of the approach we want to have. So of course I'm going to give information on timeline — do not worry.



**Dr. Arthur** (15:22): But I just want to tell people that I encourage people to deliberately not track symptoms. And I know this goes against many of the things people have been told — keeping headache diaries, keeping trigger diaries. And I am aware that there are different approaches — and as long as you feel better, I don't care which approach you take. But in my approach, I want people to leave all that behind for a little while. Ten-thousand-foot view, yes, you're here to get better from your symptoms.

**Dr. Arthur** (15:57): But if we are focusing on that, we're increasing the threat signal. We don't want to do that. So what I have people do is a few things that may sound really counterintuitive. Generally speaking, when I see people take the approach that I suggest, and they're able to let go of the timeline temporarily, they will usually see an improvement within typically six to eight weeks, sometimes much faster. I have seen people have symptoms that just click off after a few days.

**Dr. Arthur** (16:34): But more realistically, the brain needs time to change. One thing that I often say to people, Nancy, is, “Your brain was kind of set up to be sensitive before you ever developed the migraine symptom in the first place.” We call this central sensitization. It's a word people probably have heard, and I can explain it later if you'd like. But what that simply means is “Stress bucket's full; brain is kind of in a state of appraising danger or threat.” That usually started before the symptoms started.

**Dr. Arthur** (17:12): And what that means is that your brain needs time to walk that back. Brains are always plastic, from the day we're born until the day we die. It doesn't matter how old you are or how long you've had symptoms, but your brain needs time. So you need to give methods like this at least six to eight weeks to know if they're working for you. And I know that taking this on faith is really, really hard — which is why I have people focus on other goals during that time.

**Dr. Arthur** (17:43): What I said about the timeline doesn't mean things are totally resolved in six to eight weeks, but you usually know by that point, “Oh, I'm seeing some kind of improvement here. Maybe my symptoms haven't quite come down, but I'm noticing I don't feel as scared.” Or maybe, “The things that used to trigger me just don't loom so big. Maybe the things that I wasn't able to do, maybe I'm able to do more of those things with a little bit less fear, even if I'm still uncomfortable.” So we're not looking for full improvement, but you'll see progress in the ways that I just described.

**Nancy Wood** (18:21): If someone is following your approach — let's talk a little bit about coping in the moment. And maybe they're early on in the process, for example, or maybe they've been working with this approach for a while, and they've made some tremendous progress. But let's say that they have an attack — it hits, the room is spinning and the floor feels like it's dropping. What immediate and practical steps can someone take right in that moment to feel grounded and ride out the worst of that vertigo or dizziness?

**Dr. Arthur** (18:52): I have a few answers to this. And my first answer, I'm going to explain through a little bit of a metaphor. So I know many people out there love to run races or run marathons. I am not a runner. So you all run for me. I watch you as you run. But no one would run a race without having practiced first. They wouldn't just go out and run a 5K or a 10K or a marathon without having exercised first and conditioned your body to be able to handle the race.

**Dr. Arthur** (19:30): So the best tools to use in that moment are tools that you've practiced at times when you're not in that moment. And I can give you examples of some of those tools. But what happens in that moment is your brain just goes offline. When you are going through a



vertigo attack, you are not going to be able to talk yourself down and say, "Oh, this is just a sensation. Yonit said it's just my stress bucket." It's not going to work.

**Dr. Arthur (19:58):** But if there are tools that you've invested in and practiced beforehand, like a reflex, your brain can start to pull those tools in and actually use them in a way that works. So the first tool — this is not going to necessarily work as effectively if this is the first time someone's experiencing this or the first time someone's using this tool — but it's responding differently to sensations. It's that simple.

**Dr. Arthur (20:29):** So we're taught through a biomedical lens, when we're thinking about things only as a biological problem, "There's a problem in my brain that's causing these symptoms." We're taught to think of that as a pathology, as something wrong with us. "Oh, no, my brain's malfunctioning again." That sends that threat appraisal, that threat response up. And then the brain says, "Oh, my gosh, it's more important than I even thought." And it turns the volume up.

**Dr. Arthur (20:57):** So what we need to do is, recognize in that moment, "This actually is a temporary error. My brain is making a mistake. It's not a sign that my brain is unfixable or there's something horribly wrong that's going to last forever, or that my brain is damaged forever. This is a sign that my brain is making a mistake right now. It's just a mistake." And we can usually use our bodies to express this to ourselves rather than our thoughts, because thoughts go offline when we're dealing with vertigo.

**Dr. Arthur (21:37):** This is a tool often referred to as somatic tracking. So "somatic," meaning "body" and "tracking" means "I stay with it." So believe it or not, when people have practiced this, in the moment what this looks like is, "Oh, my gosh, I'm having an attack." They notice the fear. They notice the vertigo. They feel totally overwhelmed — just like everyone else — but they don't feed it. They let it happen.

**Dr. Arthur (22:05):** They relax into it, and they know, because they've practiced it — they know in their bodies — they may have cues that they've practiced in their bodies. They know that this is just an error, and it will pass. So the brain's saying, "Threat, threat, threat," but you're saying, "Safe, safe, safe." And that helps calm the brain much more quickly, and the symptoms can pass with, first of all, less suffering, but they also tend to pass more quickly that way. It's so beautiful to see.

**Dr. Arthur (22:34):** I have clients — I'm thinking of one in particular who has vestibular migraine, and she described this recently. She had an attack. She, because she knows the signs she has, she knows the signs very well that it's coming on. She knew it was coming, and she used these skills that she's practiced many times, at times when she's not in that state of terror. And she reported to me, she just — she let it happen. She relaxed.

**Dr. Arthur (23:07):** She knew she was safe, although she felt awful, and it passed within an hour. Her attacks used to last 24 or more hours. This one passed in an hour. She got up afterwards and she resumed her day. This was just a completely different experience from what it used to look like for her.

**Nancy Wood (23:27):** That is — that is really, really, really hopeful. Before we get into how people might be able to find you or find others who are offering your approach to vestibular migraine and associated symptoms, how does your approach differ from traditional vestibular rehabilitation therapy?



**Dr. Arthur (23:47):** Traditional vestibular rehabilitation therapy tends to take — not always — but tends to take quite a biomedical approach, meaning we're looking at the problem from a very mechanical perspective. So physical therapists and audiologists who do vestibular therapy know we have an issue that's causing the brain to not use information from your eyes, ears, and sense of touch the way that it ought to.

**Dr. Arthur (24:18):** So the focus is typically on exercises that help the brain learn to use those senses differently or use those senses in a more efficient and effective way than it has been. That can be helpful.

**Dr. Arthur (24:32):** The issue is, from my perspective, and the reason I don't do exercises with people anymore, is that when that stress bucket is full, and the brain is associating so much threat with symptoms and with the triggers, doing those exercises doesn't necessarily cause the brain to update in the way that you want. It's still seeing those triggers and symptoms as dangerous.

**Dr. Arthur (25:01):** So it says, "Well, that's nice. I know you're trying to tell me that the information from my eyes should be looked at this way, but I still think this is very threatening, so I'm not going to update." I really worked within a very biomedical paradigm for a long time. It just didn't work for my clients. There's of course a place for all of these things, and I want people to use whatever tools they have. So I certainly don't mean to speak poorly of it. It just wasn't enough. That's really what I'm trying to say.

**Dr. Arthur (25:39):** One of my first clients who I recall working with in the way that I'm describing now — I was doing exercises with her, and it just wasn't getting us anywhere. She was this very vibrant, just beautiful woman in her 50s, and I just adored her. And we were — I was learning and starting to put together other things that I'd learned from other areas of my life. And I remember sitting down with her one day and just starting to really ask her questions about her life.

**Dr. Arthur (26:14):** And I was noticing how she was responding to symptoms and triggers in a particular, self-blaming way. Just like you said, she wanted so badly to get better — and she was like, "I know there's something I'm doing here, or something I could be doing that I'm not doing and that I should be doing." She and I sat down, and we started talking about all sorts of other areas of her life that had nothing to do with the symptoms.

**Dr. Arthur (26:42):** And I — I saw her body start to relax as I was talking to her about this. And then suddenly, when we started to do the exercises again, she was approaching them in a very different way. And then I started thinking, what if she starts approaching everything in her life in this different way? How's that going to affect how often she has symptoms, how her brain responds to triggers?

**Dr. Arthur (27:07):** Her story is really remarkable because she had an incredibly rapid recovery — and it's not always like this, I just want to say. But once I said, "OK, I'm going to take the leap of faith now, and I'm just going to talk to her. We're not going to do these exercises anymore." I spent the entire sessions talking to her. Four sessions later, her symptoms basically just stopped, and she has not had a vestibular migraine since.

**Dr. Arthur (27:32):** She has occasional symptoms, but she sent me a picture one day of her climbing up in her closet to get the Christmas decorations. And she said, "I'm going to hang the Christmas decorations this year because I'm not afraid anymore." It was just the most remarkable thing, and I'm so grateful to her because she's the one who gave me the faith to take the leap and



say, "OK, maybe it's OK if I leave these exercises to the side for now. There may be people who do need them, but maybe talking to people and helping them address their stress buckets is actually what they need from me."

**Nancy Wood (28:09):** Are there other professionals who are now trained in your methods? Because as you know, we have viewers and participants from all over the world. And how are they going to be able to find reliable practitioners or online resources if they would like to try the approach that you're describing with us today?

**Dr. Arthur (28:25):** OK. So this is my mission in life, Nancy, what you're asking me right now. So first of all, I am acutely aware that people who are going through symptoms like these have gone through a horrific experience, and spent probably a lot of money, and shed many tears. So everything that I just explained and much, much, much more is available for free on my YouTube channel and in my course, which is also free.

**Dr. Arthur (28:59):** All of the information that I put out is free because I want people to be able to get started on their own and see if it makes sense to them. So my YouTube channel is the first place I would send people. In the comment section, you will see literally thousands of people who've gotten better just by watching the YouTube videos. I try to make things very simple. I will answer the question about practitioners, but I just implore people to know it's never your fault that you have chronic symptoms.

**Dr. Arthur (29:31):** Never, never, never. When we talk about all the stress bucket stuff, it's never to imply you're at fault, but I am saying you can take responsibility, and that is a gift because that means the power is back in you. It's not in someone else. You no longer have to rely on other people to fix you. When you say, "This is back in my hands now." There's no greater message to your brain that things aren't threatening than you saying, "I can do something about this. I'm not broken."

**Nancy Wood (30:06):** I love how you describe that this has become a very important mission in your life — to help people with these symptoms. Are there other professionals who have been tuned into what you're doing and are wanting to train people as well?

**Dr. Arthur (30:21):** Yes. So I'm working on training other professionals now. I've also connected with prominent neurologists at some very prestigious institutions who are sending people to the work that I'm doing, and I'm in constant communication with them. We're trying to get the word out through medical journals, and I'm speaking at a bunch of conferences. I don't just talk to clients and patients and people suffering. I talk to professionals as well. So I'm working on a professional course.

**Dr. Arthur (30:54):** In the meantime, there is a group of practitioners who are trained in essentially neuroplastic methods. And while I am not aware of others beyond me and my team who specialize in vestibular symptoms, I've been training them. I've been giving them lectures and giving them information. So, the Association for the Treatment of Neuroplastic Symptoms, that's the ATNS — [symptomatic.me](http://symptomatic.me) is their website.

**Dr. Arthur (31:29):** They have a huge directory of practitioners all over the United States, and some worldwide who specialize in this particular approach, this biopsychosocial approach to chronic physical symptoms. In the U.K. and Europe, SIRPA — the Stress Illness Recovery Practitioners Association — they also have a directory of practitioners.



**Dr. Arthur** (31:55): And people in these directories, even if they're not 100% familiar with vestibular symptoms, do have the understanding that I have, that these symptoms can be greatly mitigated, if not reversed, using treatments that are noninvasive, nonpharmacological, that just change how the brain functions.

**Nancy Wood** (32:19): For someone who's been dizzy or unsteady for months or even years, and they feel like nothing is helping, what would be the very first step or mind shift set that you would encourage them to take to begin to break that cycle?

**Dr. Arthur** (32:34): The first thing that I would say to someone like that is: “Your brain is always plastic. Your brain is always plastic, from the day you're born until the day you leave this earth. There is no such thing as ‘My symptoms are too bad; I've had it for too long.’ Your brain can always update and change in a positive direction. And if you're chronically dizzy, chances are that what's happening is your brain is making some errors in how it's understanding sense information, and it needs to be updated.

**Dr. Arthur** (33:12): “Those updates can happen no matter how long you've had symptoms, and no matter how bad they are.” So the first thing that I would tell this person after I gave them that speech is: “The first thing you need is hope. The first thing you need is to know that it's possible to get better.” And that, again, is so much a part of my mission in putting the videos out.

**Nancy Wood** (33:35): And I think those two points — believing that our brains are plastic and they can shift, they can shift and rewire themselves — that in itself gives hope to someone who might be suffering with these symptoms at this point. And what gives you the most optimism about the future of vestibular migraine care?

**Dr. Arthur** (33:57): I'm seeing so much positive movement. I mentioned this earlier, but I'm in touch with colleagues at — neurotologists, audiologists, physical therapists — at some very prestigious institutions all over the world who, like me, have felt so frustrated with our inability to help people going through vestibular migraine and other chronic dizziness-related syndromes, live the lives that they want to live.

**Dr. Arthur** (34:27): And there's growing recognition, both on the clinical side and on the research side — and on the research side — that these symptoms can be greatly mitigated, if not gotten rid of, using neuroplasticity-type tools. We know this from, again, some research — although it's still in its nascent era right now; it's still developing — but we know this through growing clinical recognition that these things, these tools that we're talking about, help people feel better.

**Dr. Arthur** (35:05): And I've been so impressed with how open the neurotologists that I've spoken to have been to this. And the reason that they're open to it is because it actually makes complete sense in light of what we know about how these symptoms happen. It really does make sense in light of the research and science that we do have about how they work.

**Nancy Wood** (35:33): Are there studies that you know, that are either — they've been done or they're in process? And if so, is there anything that we could share with our viewers as well, that they could read?

**Dr. Arthur** (35:47): Yes. So I do want to say that research on these conditions tends to be very biomedically focused in the sense that it's much easier to measure in a study what happens when someone takes a pill versus when someone doesn't. And to be fair, as I said earlier, I'm agnostic



about whether someone takes a pill. That's fine. These techniques are a bit harder to study because there's so much variability between people.

**Dr. Arthur** (36:17): But we do have studies on PPPD in particular, persistent postural-perceptual [dizziness], which is really a word that describes when someone has chronic dizziness, whether that's because they had vestibular migraine attacks that lead to chronic dizziness or they just have chronic dizziness and they don't necessarily have a migraine diagnosis.

**Dr. Arthur** (36:40): We have studies on those showing that cognitive behavioral therapy and ACT (which is acceptance and commitment therapy), greatly increase the efficacy, or how effective, biological treatments are. We have research on that. We have newer research that's starting to look at chronic dizziness as a form of post-traumatic stress — so indicating there's a very big psychosocial component to why symptoms become chronic.

**Dr. Arthur** (37:13): And I'm so happy to say that outside of the vestibular world, we actually have a growing body of literature showing that these techniques are helpful for a wide range of symptoms, including migraine, but also chronic pain — and this is musculoskeletal pain or fibromyalgia, chronic migraine type pain.

**Dr. Arthur** (37:39): Also indicating that when we treat the brain as plastic and we address the person as a whole person and look at those psychosocial factors, we dramatically improve their outcomes, and in many cases can greatly reduce or eliminate symptoms.

**Nancy Wood** (38:01): Thank you so much, Dr. Yo. Not only have you given us hope, but you've touched on things like the brain's plasticity and things that viewers can learn to do in a relatively short time to help address some of the worst and agonizing symptoms.

**Dr. Arthur** (38:21): Thank you. Thank you for the opportunity. This was really a privilege. Such a privilege.