MIGRAINE WORLD SUMMIT

INTERVIEWS WITH WORLD LEADING EXPERTS

TRANSCRIPT

HOW YOUR GUT AND SLEEP AFFECT MIGRAINE

STASHA GOMINAK, M.D.

Introduction (00:04)**:** Ultimately, what I want for every person who has migraine is to delineate a path out. And the path out, in my experience, is better sleep. I've used all the medicines. We've all used all the medicines. We've all made up all these theories. If they haven't helped you — and they didn't help my patients; no matter what medicine I would use, two or three years later, they'd be back. We had success at the beginning, and now it's worn off. Why? That's weird! If this medicine helped at the beginning, why does that effect go away? It turns out that the sleep disorder is always hiding in the background. If you do not address that, you will not get better.

Carl Cincinnato (00:42)**:** You've likely heard of the gut-brain connection, but you may not have heard about how the gut affects sleep and how both affect migraine in the deep area of the brain, called the brain stem. To help us understand how and why the gut, and sleep, affect migraine is Dr. Stasha Gominak. Dr. Gominak welcome to the Migraine World Summit.

Dr. Gominak (01:03)**:** Thanks, Carl. Thanks for inviting me.

Carl Cincinnato (01:06)**:** How does sleep affect the brain?

Dr. Gominak (01:09)**:** My personal feeling is that we use our brain every moment that we're awake and that we only repair and refurbish, or resupply, while we're in deep sleep. So not just are we asleep, but are we able to successfully get into certain phases of sleep? So, when I got interested in sleep, what I was looking at is sleep studies that showed young, healthy people that had light sleep, but abbreviated deep sleep. They didn't stop breathing, they just didn't have enough deep sleep.

Carl Cincinnato (01:49)**:** So when you stop breathing, that's something that when you do a sleep study, that picks it up.

Dr. Gominak (01:54)**:** Right. So the sleep study — the first thing that was recognized was sleep apnea. And that's now 25, 30 years old. But it's my belief that that particular finding on a sleep study isn't end-stage disease and my original journey into sleep ... I'm a neurologist, I had about half of my practice in daily headaches, people who were struggling with not feeling good every single day. And they were often young, healthy women, teenagers, kids. And I started to do sleep studies in them because one of my patients demanded a sleep study — had sleep apnea, put on a CPAP device, and her headaches went away — which to me, it was totally unbelievable. I'm very much a biochemistry-type person. I had very clear ideas about the chemistry of migraine; I still do. The fact that she could strap on this torture device — a CPAP device, as far as I was concerned, that was a torture device — because her head hurt so much she didn't want to brush her hair. And [that] her headaches went away was mind boggling to me. It was a totally different way of thinking about it.

Dr. Gominak (03:04)**:** So I ended up doing thousands of sleep studies on young, healthy females with daily headache. And it took quite a while to figure out what was different about these people. Most of them didn't stop breathing; they just had less deep sleep — in particular, less rapid eye movement sleep. And because that's not really about breathing and it doesn't really seem logically to lend itself to putting on a machine that blows air up the nose, it seemed to me that that had to be something that was on a brain level. So that led me down a particular path.

Carl Cincinnato (03:41)**:** So the REM part of sleep is what we call the rapid eye movement. And that's an important part for the reasons you've just described.

Dr. Gominak (03:52)**:** Yes. And it appears to me, that if you short someone on their REM sleep — either because they have a baby at home, like you, or because they're not able to chemically make the neurotransmitters that allow them to progress into these phases — then you'll wake up all the time or you'll wake up tired. And that means *that* part of sleep disorders has basically been ignored. Insomnia and waking tired, or waking up multiple times and, "I can't go back to sleep," is extremely common but basically ignored by the sleep literature.

Carl Cincinnato (04:27)**:** I don't know many people that can actually say that they wake up refreshed every morning. Is there another pandemic of just sleep dysfunction?

Dr. Gominak (04:38)**:** Yeah. Well, it turns out as I started to do this more and more, I began to realize that every single person that visits a neurologist has a disorder that's in the background and stealing their sleep. When you steal someone's sleep, you then start to fail, and you manifest whatever your genetic weaknesses are. You don't all manifest migraine; some people manifest with epilepsy, some with Parkinson's, some with tics or Tourette syndrome, some with chronic pain. So, when I take away the sleep of a whole population, then they begin to manifest their diseases. And if you never make the connection between: Health is really about normal sleep, and sleep is hidden. It is not only hidden in that we are in our own home, but it's been hidden from medicine. We had no way to access it. We didn't think about it because all of us just sleep and we think we know everything about it.

Dr. Gominak (05:39)**:** And that makes things very difficult. Because every time I say, "Gee, if you have headaches, you have a sleep disorder." Everybody thinks they know what sleep means. Most of the last three generations do not wake up rested — the great majority, and that is a new event. But if all you're using to judge how you're sleeping is everyone you talk to, or even your friends that are talking about their kid's sleep — if my kid wakes up three times at night and they're 4 years old — everybody you've talked to at the supermarket or at your cocktail party, or when you can actually talk to them (now that COVID came) says, "My kid's the same," that becomes the new normal, but it's not normal.

Dr. Gominak (06:20)**:** How do you know if you have good sleep? You wake up, you're happy, content, rested, you don't take any pills because there's nothing wrong with you, and you don't need to go to the doctor. That's the same for every child and every adult.

Carl Cincinnato (06:31)**:** Sounds wonderful.

Dr. Gominak (06:34)**:** It is wonderful.

Carl Cincinnato (06:34)**:** So bringing this to migraine, how does sleep affect migraine?

Dr. Gominak (06:39)**:** I originally did these studies in my migraine patients. I really believe that migraine is a genetic disorder that's linked to the location where the pain system is in the brain stem. But ultimately, even though we're going to talk later about right sleep and vitamins, it is normal sleep that prevents headache. So in my view, there are multiple disorders that are about certain parts of the brain that are supposed to be in the "off" position, that by accident or by some method we don't know, turn on inappropriately. So, as

far as I'm concerned, migraine is a hyperexcitability: a turning on of the pain system in the brain stem. How does it get that way? And in my view, that's because as you steal away the hours that the brain would use to make certain chemicals, you are actually taking away the mechanism the brain had. Yes, there was a genetic tendency, but the brain found a way to shore up that weakness — it would make more of this chemical or more of that chemical; make sure that the processes still work.

Dr. Gominak (07:51)**:** So migraine is something that, when you're having daily headache, you really feel like you're being tortured to death. It's horrible. The idea that we would be given that gene mutation as a survival advantage, is crazy. This does not help me survive. I'm suffering here. I'm dying. I think that the genes for migraine really came about throughout the globe — it's the one thing that's existed in every human population. It was there for another reason; it was to help us flip our sleep switches more readily. They went, oop-boop [flip-flops her hand]; I fall asleep easily, I wake up easily. This is a part of the brain we really have no voluntary control over; it wasn't designed to have voluntary control. The mutations were meant to make you sleep better. But if you move into a different circumstance where the chemistry is different — where now you have vitamin D deficiency and the microbiome is lacking and you don't sleep well despite these genes — all of a sudden those genes are no longer an advantage. They actually made your sleep switches flip — now your sleep switches are not flipping well. And the little switches that are next door, that do pain, start to flip spontaneously, too. The effect of that gene is spread out a little bit in the brain stem. Now you're putting all sorts of other cells at risk. It's kind of a complex idea, but it's based in: If you sleep well, your brain repairs every single switch. If we take your sleep away, then whatever your genetic weakness was begins to flip a little too soon. And now, you've not had any head trauma, you know that there's no bleeding, you know that nobody's smacked you in the head with something, but your head feels like that's what happened.

Carl Cincinnato (09:47)**:** It's an interesting theory. So, just so I can play it back to you: The theory that you're proposing is that migraine potentially came about years ago — before modern-day illnesses and habits that have become entrenched in our lifestyles — came about to help us sleep, to sleep better and to get enough of that quality sleep that we need to function. But now, because of other issues that we have as a population, as a species, it's now manifesting in these other undesired outcomes, such as migraine, headache, and all these symptoms that we struggle with.

Dr. Gominak (10:25)**:** That is my belief. And there are some really good anatomic reasons for that, that we don't have time to go through. Ultimately, what I want for every person who has migraine, is to delineate a path out. And the path out, in my experience, is better sleep. I've used all the medicines; we've all used all the medicines. We've all made up all these theories. If they haven't helped you — and they didn't help my patients; no matter what medicine I would use, two or three years later, they'd be back. We had success at the beginning, and now it's worn off. Why? That's weird! If this medicine helped at the beginning, why does that effect go away? It turns out that the sleep disorder is always hiding in the background. If you do not address that, you will not get better.

Carl Cincinnato (11:09)**:** And that makes a lot of sense to me personally, because I know that when I get a series of good nights in a row of good sleep, it is like a force multiplier: I can inflict all sorts of insults in terms of trigger foods and maybe even alcohol at times. And my resilience is much higher than I would otherwise be if I'm not well rested, and I need to be walking on eggshells, just to not have an attack.

Dr. Gominak (11:35)**:** Yeah. I love that phrase that you just used; that "walking on eggshells" means, my brain is cranky. It won't put up with a little bit of a move. And one of the things that I notice when I'm getting people better — when their sleep is getting better — is, not being able to think is a prominent part of migraine. We don't talk about it, but it is always there, and it's there even in little headaches. My daily headache sufferers complain that they're "foggy headed," they have specific terms for it. That, in my view, is an integral part of migraine. That means that most of the clients who I'm seeing for daily headache will report two or three headaches a week, but they really have a milder, "baby migraine" —and I would still call it migraine because it's still a little bit of light sensitivity, still a little sound sensitivity; "I can't think right, I'm not at my best mentally," is in the background all the time. As you get better, you get to see that there's a little tiny "baby migraine" that is, "Oh man, I think I'm going to get a headache today. I have this weird feeling. It's not painful. It's just that my brain isn't right. I know I might get a headache today." And then you're really careful. You might try to go back to sleep — you might be successful, you might not. Those symptoms begin to slowly settle out, and you can actually recognize that there's a very much milder migraine that is just a change in your ability to think. The speed, it's like you're working on six out of eight cylinders. When I can get my patient to a place where they can actually say, "I haven't had that. And then I woke up and I was completely clear. And then that started, I felt that feeling." That's the very beginning of migraine. You must get *there* before you can then say, "Oh, all of my brain chemistry is completely clear. And I'm beginning to recognize that the very beginning of migraine is *that*." We neurologists have taught our patients incorrectly, in my view, that migraine is a certain thing: It's a bad headache, it has these qualifications. In my view, it's a continuum. And really, you'd like it to be completely gone. Most of the people that I work with are also tired and it's almost impossible to sort out, what does it feel to be sleepy? What does it feel like to be tired? What is it like to be foggy-headed? All of them come together, and then as you get better, you realize, "Oh, I can be tired and not have that creepy feeling where I can't think, and I'm not at my best." So, that's a fascinating thing. That's opened a lot of doors for me in understanding migraine in a different way.

Carl Cincinnato (14:24)**:** As a patient, how do you know whether those symptoms are part of the migraine or maybe part of the drug that you might be taking to treat it, as a side effect?

Dr. Gominak (14:32)**:** Great question. You can't. You can't until you get better. So, I'm practicing for 25 years, giving these medicines out. The medications that we've used for migraine, in my view, have all been found by accident. In my view, we don't have a good explanation. In the '90s, late-'90s, we got triptans — amazing miracle medicines in *some* people. And then we have now, 70 or, you know, lots and lots and lots of journal articles about various channel disorders. There are lots of these mutations. The fascinating thing about those mutations are: Oh, calcium channels. Well, do we use calcium channel blockers for migraine? Yeah. They're called blood pressure medicines; we use them all the time; seizure medicines — seizure medicines that are sodium channel stabilizers. That means when we found these genetic markers, it made perfect sense for the drugs that we'd accidentally stumbled into. But the bottom line is, the drugs are still a crutch — they are still an attempt to shore up something that's chemically wrong. And they fail, all of them eventually fail. Because in the background ... See, what happened to the original patient who did the CPAP and she got better is, I'm like, "Well, wait a minute. She's wearing that torture device. I've just used four different medicines in her over two years, none of them worked. Yet, she straps on this torture device — all it's doing is blowing air up her nose, it's not a chemical. Why did she get better?" It was so much better than what I was doing. Is it

possible that she's making some chemicals that are tailor-made to her mutation? Now we've got like 50 different gene mutations. How am I going to ever cover that? We have crappy medicines that we've learned by accident. What if her brain is making exactly the right chemical for her specific mutation? In fact, you know what? She didn't have headaches until five years ago. That means it was making the right stuff for her; it means her brain knows better what to do than I do.

Carl Cincinnato (16:30)**:** So, lots of people have sleep disorders. And as you mentioned before, it sounds like sleep, lack of sleep, poor sleep, brings out whatever your predisposition is. And, as you mentioned, it could be Lyme disease, or infections, or chronic fatigue, or in our case, migraine. How can someone with migraine improve their quality of sleep?

Dr. Gominak (16:53)**:** Excellent question. I want to first state that most of what's online right now is about blaming the patient: You don't do it right." All the teenagers: "Oh, you're on your computer too long." "Oh, you're on your phone too much." "You're doing it wrong." "You drink too much wine." "You don't exercise." "Your diet isn't right." My clients, my patients, were already trying all that stuff. And so they're looking at me, and I don't think it's right for me to say, "You know, [wags finger]," just blame them for their own disease. That doesn't help. They said, "I've done all these other things. Please help me." The very least, I should be able to say, "I'm sorry, I don't know why you're suffering like this." What happened was, I wound up using the "vitamin" word a lot. It's not what I chose. I ended up falling into the vitamin D literature that was wrapped into these cells in the brain stem that make our sleep better.

Dr. Gominak (17:50)**:** And that was already in the literature. So, what happened to me was, I finally got desperate enough ... So the first five years of me doing all these sleep studies in daily headache sufferers, what I had were CPAP devices and sleeping pills. So, for five years, I gave out sleeping pills and they got better. It wasn't perfect, it wasn't what we wanted. And it didn't cure them but they definitely got better. That shores up the concept that the *sleep* is the primary disease. And then I'm at a place where I'm really thinking about sleep in a different way. I'm thinking about it on a cellular basis. I'm looking at these sleep studies saying, "Why would an 8-year-old stop breathing and kick his legs? Why would any 8-year-old have anything less than perfect sleep? And this kid does not have an airway problem. Could it be that there's a functional thing in our brain that's not working right?" So, I'm spending a lot of time blabbing away to my patients about this. I'm telling them that stopping breathing is really about getting too paralyzed, that having kicking legs is about not being paralyzed enough. And I think, well, wait a minute, there's a place in the brain where we get paralyzed — that means, maybe it's getting wobbly? Maybe it's, kind of, a little too paralyzed part of the time, not paralyzed enough [the other part of the time].

Dr. Gominak (19:05)**:** And I'm beginning to read these nerdy articles about certain cells that are pacemaker cells that run our ability to get paralyzed. And I'm thinking about it on a cellular level. And one of my patients who's 18 and looks perfect — she's perfect — but she has daily headache. She's about to go to college. She has a sleep study that shows no deep sleep. She has 10 solid hours. As far as she's concerned, she sleeps fine. She wakes up tired, she doesn't have any deep sleep. She wakes up 35 times to light sleep — she never wakes up but she wakes 35 times. That means she's trying to get into deep sleep. She had B12 deficiency, enough for me to even notice it. That's not my area of expertise. We are not trained to look for B12 deficiency in headache patients. The weird thing is, if you look under

the neurology textbook and say, what are the symptoms of B12 deficiency? You will see headache listed. But if you look into, what should I look for as a neurologist to work up my headache patient? You don't see B12 deficiency. You don't see sleep disorder — you didn't at the time; in the last 10 years there are more and more articles that say you should look for a sleep disorder.

Dr. Gominak (20:16)**:** So B12 was the entry, and I was really thinking of it as, "Wow, maybe these pacemaker cells need a little more of this vitamin. I don't even know what that does, but I know it helps repair the cell." So thinking of it on a cellular level, I then somewhat accidentally stepped into vitamin D. Vitamin D was low in every single one of these people. And then I found this literature that shows that vitamin D receptors are all over the areas where we get paralyzed. And I said, "Well, we don't have anything else. What if there's a vitamin D blood level that would allow me to sleep like I did in Mexico on the beach?" And that would be an ideal blood level for these women. And maybe they'll get better. We don't have any other intervention. Nothing else has really worked. And I began down a road where I'm doing vitamin D levels, I'm giving vitamin D. And sure enough, there is a specific blood level that makes the sleep better. So I stepped into an area that is very contentious. Vitamin D is on the front page, all over the place now around the world. It's a very difficult literature, but it made a huge difference in the sleep of my clients.

Carl Cincinnato (21:23)**:** So you mentioned supplementing with vitamin D and then starting to see all these results. Is it just as simple as finding the right dose of vitamin D and you return your sleep back to normal?

Dr. Gominak (21:35)**:** I wish it were. And that's a wonderful question. What happened to my patients was: They got better. We got really good with the vitamin D level. You have to do blood levels — that's a big challenge in Australia, it's a big challenge in the U.K., and in Canada, because you really cannot get accurate levels there. And we'll talk about how to find out how to do it otherwise. But, if you get the vitamin D level just right, it's really good for a while. So it's one of the factors. But a disaster occurred at the end of two years. So, I get really good with the vitamin D, get everybody's vitamin D exactly where it was. No question, we all got better. But at the end of two years, most of us started to fail. And we got new symptoms that weren't, as far as I could tell, they weren't really about vitamin D. So we're doing something for two years, and then we start to have terrible pain, our sleep goes bad again — the vitamin D level is perfect. And it becomes clear that the brain wants something else. And not only does it want something else, but we're actually worsening. And I don't really know what's going on and I get kind of freaked out because I'm getting pain, too. And somebody brings in a book about another vitamin. So, there were three important things that didn't get better: Vitamin D does a lot of stuff, but they did not lose weight — I am convinced they were overweight because of the vitamin D being low; their IBS symptoms, their belly symptoms, did not get better; I had expected the bacteria that we already, by that time knew, were starting to be wrong — because I'm taking probiotics, they're taking probiotics, my patients are telling me recipes for probiotics. We know the bugs aren't right. I expected the vitamin D to bring them back, but they did not. And that is very important.

Dr. Gominak (23:13)**:** So, I get into taking these books that the patient brings me and giving B vitamins, because there's a claim by this person in this book, that B5 — which is a completely overlooked vitamin — not only makes the sleep better, but it helps with burning in the hands and feet and a couple of my patients had just come in with that. So I give B

vitamins and over a series of steps, it becomes clear that what the bugs really want is vitamin D, they do want [vitamin] D, but because they are also making B vitamins. So the reason why all eight B's — there are eight things called B. That's weird! Like we named A, and then we have eight things called B, and then there's C. Like, what's up with that? It turns out that those eight chemicals are made by a foursome of bacteria that are easily obtained in the liquid we use to make beer and bread. They all came as an eight-pack because these four phyla of bacteria are existing together because they're feeding each other. They're sharing the B's. There are now scientific articles that show that this is not just my theory, it is actually what happens in this foursome. They arrived there spontaneously in three-month-old babies from moms who are out in the sun, feeding them breast milk that has a high enough D level to substantially give a [vitamin] D level to the baby and allow there to be the perfect environment for these four species to become the predominant ones. So you still need [vitamin] D; it is a trophic factor for the bacteria. And luckily for me, there are now articles just in the last year that substantiate this in humans: You give [vitamin] D, the bacterial populations change. So, in the normal outside-living human population, it was mom's [vitamin] D in her breast milk, that made the selection of the four phyla that would be in baby's belly.

Dr. Gominak (25:12)**:** It turns out that baby's belly is supplying chemicals — these B vitamins — that are absolutely necessary to pay attention during the day, and to sleep at night. That means we already had a spontaneously developing microbiome that was self-sustaining for 75 or 80 years. We never took probiotics; we ate what we had available, like every other animal that exists today. We did not go to the vitamin store and buy vitamins. The vitamins came from our belly and from the bacteria that were on the vegetables.

Dr. Gominak (25:50)**:** The other *really* important point is, when you get the [vitamin] D to a certain place, it by itself does not bring back the foursome that you need. Every single person who has a medical illness and does not sleep right, needs the D level up and the bacteria back. If you do not bring your bacteria back, what happened to my patients was, they're using more and more and more vitamins because they're sleeping better. We're all sleeping better. What we want from that sleep is not to be unconscious — we want to be making repairs so that when we wake up we feel great. As we use our body, or sleep, to make those repairs, we're using up all of our B vitamin stores, and there are stores of the B vitamins. That means I believe that what happened was I pushed my patients to a B-vitamin-deficiency state that led to burning in the hands and feet, and chronic pain, and bad sleep again. And this is going to be around the globe. Everybody who starts vitamin D — even if it's 2,000 [IU] a day or 5,000 [IU] a day — you will slowly, over a period of years, start to use up your B vitamin stores if you do not bring your microbiome back.

Dr. Gominak (26:54)**:** It turns out to be very simple, to bring it back. It's really not about probiotics. It really is simply: You have to give the bugs their growth factors. And it's a combination of vitamin D and what's called B50. B50 means 50 milligrams of thiamin, 50 milligrams of riboflavin — all eight, 50 milligrams — starts this little B soup, just like that culture we were talking about. It gives them their growth factors and they go, "Whoopie, I finally have what I need." And they all grow back and the foursome is back. Then you must stop the B50. So it's for three months only and then you stop it. Because it's quite complicated, I actually have a workbook that takes you through what to do for an entire year, because it's a bit complicated. But that complication part of it, is daunting; however, it is a path to lead you out of needing drugs. It's a path to lead you out of needing those

sleeping pills. It's not that the sleeping pills are bad; it's that they aren't the only answer. The disease is really the lack of the microbiome.

Carl Cincinnato (27:59)**:** So, that was a lot to take in there. I want to just make sure I understood it fully. So, vitamin D is not the only part of the solution, in fact, far from it. It sounds like to get long-term sustainable remission from chronic migraine, and the symptoms associated with it, you need to fix your gut microbiome — which is the bacteria, the good bugs that exist inside the gut — and to do that requires having a healthy mix of B vitamins.

Dr. Gominak (28:29)**:** So, B5 is one of the chemicals and B5 is directly involved in our sleep — it makes a specific neurotransmitter. Then there's a separate thing that's called B50. B50 is a B-complex — it's a mix of eight B vitamins, and they should always be given as an eight-pack. The 50 — and it's nonproprietary — that means it's not made by a specific drug company or a specific nutrient company; it just says B50 on the front. And what that means is, every single one of the vitamins is in 50 milligrams or 50 micrograms — except for folate, for reasons I do not understand.

Carl Cincinnato (29:07)**:** I would love to be able to talk to you about this subject for another couple of hours. I'm afraid we're sort of out of time. There's a lot of concepts and approaches here. Where can people learn more about this, sort of, approach, and learn more about you, as well?

Dr. Gominak (29:24)**:** Carl, it's my thrill to be here telling you: My website is drgominak.com. And I have multiple ways for you to learn: I have written material, I have lots of webinars. These are so many ideas that are different than the current dogma, that it really takes a little bit of learning in depth. But I also have a workbook that is designed with the *how*. So, the *why* is free on the website. The *how* is delineated in stepwise ways through a whole year, of how really to get your sleep completely back to normal and keep it there for the rest of your life. Believe it or not, you don't want to just get better sleep *now*; you want to learn how to do it for the rest of your life and that's in the workbook.

Carl Cincinnato (30:11)**:** Fantastic. Well, I think I've taken a lot away from this interview. I think the fact that vitamin D plays such a crucial role, getting out into the sun, and then making sure our guts are in a good place, and the connections with sleep make a lot more sense. So, Dr. Gominak, thank you very much for joining us on the Migraine World Summit.

Dr. Gominak (30:31)**:** Thank you so much, Carl.