

## Evolution of Psychiatry

Presenter: Dr. Kelly Brogan

*The purpose of this presentation is to convey information. It is not intended to diagnose, treat, or cure your condition.*

**James:** Hello! And welcome back to The Evolution of Medicine Summit. It is my distinct pleasure to welcome today Dr. Kelly Brogan from New York. Dr. Kelly it is great to have you on the line. Thanks so much for being here today!

**Dr. Brogan:** Total pleasure!

**James:** Dr. Kelly Brogan is one of my favorite physicians. We've had her a number of times on the Functional Forum and consistently blows away the audience with just a combination of, obviously, you've got a lot of passion for a range of topics and also just a lot of clarity as to communicating what are pretty complex topics.

So Dr. Brogan started off training at Cornell University as a doctor and before that was at Massachusetts Institute of Technology. And has since done a lot of postgraduate training in integrative, holistic medicine, consultation psychiatry, psychiatry, and is now, I would say a holistic psychiatrist with an interest in a lot of other things.

Dr. Brogan, maybe this is a good place to start. When I look at your website, it seems like there's a lot of areas that you're interested in, reproduction. You're interested in women's wellness. As a psychiatrist, what is it that drives your desire to understand these other areas that most psychiatrists don't get into?

**Dr. Brogan:** Yeah. So I think the thread that I have been able to pull from the various interests that I have around birthing and mothering, around child and pediatric care, and around psychiatry, I think the thread is really my passion for informed consent or at least approximating it as best we can in the medical setting.

So really it started when I decided to specialize in what's called reproductive psychiatry. At the time that I specialized in it, it was this burgeoning area of interest. And there were very few people in the world who were focused on the treatment of pregnant and lactating women. And I was born a feminist. I'm very interested in advocating for and empowering women. It's what I feel like I wake up in the morning to do. I have two daughters. It just seems to all just synergize in my heart and my mind.

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So to me it always made a lot of sense to specialize in women's health. And I found that psychiatry afforded me, I guess, the opportunity to build relationships with women that becoming an obstetrician or gynecologist didn't seem to—at least on my clerkship rotation in medical school—it didn't seem that I would have the opportunity to really get to know these women in any meaningful way or advocate for their health and wellness.

So I specialized in reproductive psychiatry. And really part of that is helping women to navigate decisions around taking medication that they might already have been taking. Or that somebody might feel, as indicated, whether it's a doctor or themselves, during pregnancy and also postpartum, so during potential breastfeeding window.

And so my fellowship level training in this was really an exercise in understanding how to analyze safety data to look for areas of corruption of that data. Who's funding the study? What agenda might they have? What is the nature of the data? Is it a cohort study? Or is it a case control? Is it retrospective or prospective? So it's like a crash course in statistics in some way. But also in an appreciation for how much goes into really making a thoughtful decision around engaging with a pharmaceutical product.

And so I began to really broaden the lens and look at all of the exposures that my pregnant patients were encountering throughout their pregnancy. And it really seemed like a lot more than just, "Should they take Zoloft or should they not take Zoloft?" It seemed like we have to start applying this rhetoric to all of their exposures to the food that they eat to the cream that they rub on their skin to the pollutants in their water and their air. You know, what are they bringing to the table individually? Are they obese? Are they stressed out? Do they come from a family of patients with autoimmune diseases?

It gave me pause. And I started to think about how inappropriate the current evidence base is for where medicine is going, which is to investigate the role of biochemical individuality to really personalize these interventions. And so personalized medicine, at least as far as is incarnated today, is really best represented through functional medicine. So I started to think about how I could hang a lot of these thoughts on a type of training that would allow me to really see my patients as individuals. And so I began to specialize in functional medicine.

And the rest is history because it was all so dovetailed with, I guess, "My personal journey." I had a baby at the end of my fellowship. And I developed postpartum thyroiditis. And that was about nine months or so postpartum. And it wasn't any dramatic affair. But after going back to work very early, I was like sort of a hypomanic state, practically. And I was super energized. I lost all my birth weight almost

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immediately and was able to carry an eighty hour work week beginning at five weeks postpartum and also care for the baby and pump breast milk for a year. And all of this, it began to catch up with me. And I became really forgetful and cloudy. And I began double booking patients—something I never do—and forgetting my ATM pin number. And all these classic could-be-brushed-under-the-rug-as-a-new-mom symptom.

And then at a routine physical, I was diagnosed with Hashimoto's or postpartum thyroiditis. And I thought, "I'm not going to take hormone for the rest of my life. There's got to be some way to fix this." And I had the good sense to consult a naturopath.

And through my journey in resolving my Hashimoto's, I also, of course, really learned about many of the tenets underlying naturopathic medicine. You start with the gut and understanding and appreciating the interconnectedness the endocrine, immune, and neurochemical systems. And it really just exploded my perspective on what I had been thinking about as separate organ systems specialties up until that point because that's how we're taught in conventional medicine.

**James:** So do you think that every—for the other physicians that are out there—do you feel like most physicians are just one of their own big health dramas away from having the same understanding? Or do you think you had a unique journey?

**Dr. Brogan:** No, not at all. From the pioneers to the folks who are just practicing quietly in their offices when it comes to holistic medicine, I, too, a person has undergone a transformation. And really that's how I, at the risk of sounding melodramatically, that's really how I think about it.

You have to actually transform, open yourself up, shed knowledge and grow new knowledge. You have to transform your approach to the human experience and really unlearn almost everything that you spent almost a decade and sometimes hundreds of thousands of dollars, sleepless nights and stress and indentured servitude. Unlearn everything that you acquired over that period of indoctrination.

And so you have to really feel a level of motivation and fearlessness to engage it. And I think, for the most part, classically that comes from a personal journey, some encounter with the limitations of allopathic medicine. Hashimoto's is a perfect example of the failure, in my opinion, of allopathic endocrinology. What does the conventional endocrinologist have to offer the Hashimoto's patient? Really suboptimal outcomes, chronic symptoms, and a one-size-fits-all treatment.

So it's the perfect model. It's serendipity in some ways that that was my entry point because holistic medicine has a cure to offer and a thorough resolution and even optimization of health beyond what you had even before diagnosis. So it's a totally different paradigm.

**James:** Yeah. That's amazing. So let's go back to medical school. You're in medical school. You're drinking the Kool-Aid, I guess, at this stage, right?

**Dr. Brogan:** Yes. Yes.

**James:** Were there murmurs of dissent among your peers because you're in this psychiatric residency or you're going to psychiatry? Were there murmurs of dissent? And what was happening with those murmurs? Like how were they dealt with in that period of time before you had your own switch?

**Dr. Brogan:** It's interesting because that's actually something that fuels a lot of my fervor around this is reflecting back. I trained at one of the premier institutions in the world—Bellevue—with a thirteen psychiatric inpatient units. And we also cross cover the Veterans Administration and a private hospital at NYU and Lenox Hill and the state hospital. So we just get a breadth of exposure that's really pretty unparalleled and also exposure to many different types of mentors.

And so my beef, at this point, in my re-learning process is that what I have unearthed on my own about the myths of psychiatry—if you want to call them that—was never in any way shape or form represented to me throughout a decade of training. And I take issue with that. I read a book in 2010 called *Anatomy of an Epidemic* by a journalist, very pioneering and brilliant journalist, Robert Whitaker. And in that text, he basically deconstructs and explores the available data that suggests that long-term treatment with psychotropic—with all of them, from antidepressant to benzodiazepines to neuroleptic—that long-term treatment outcomes, as far as the available data suggest, tell us that patients do more poorly, that they have worse functional outcomes with treatment than without treatment.

And he consulted experts about hypotheses as to why this might be the case. And he goes through sixteen different studies, some of which are sponsored by the WHO. And I thought back on all of the different supervisors I had had. And not one time did anyone ever say, "You're starting this patient on an acute treatment in an inpatient unit. But we really want to have an eye towards whether or not they might be somebody that we would taper off medication because of what's suggested by this, this, or this study," or

even to discount the study or dismiss it or poke holes in it, which a lot of conventional psychiatrists have done even in response to the book and to writings related to the book.

So that to me, I guess, was a window on the world of the influences that corrupts education in medicine because I really got quite a filtered version of the information that is available. And, again, even if it's just to round out the conversation, but even if I was represented a biased view of it, that would have been one thing. But it was much of this data, which we can go into, or even some of the more provocative studies around the role of the placebo, let's say or some of the questions about pharmaceutical influence, really none of that was ever represented to me.

So I really sought out a lot of this information on my own. And I think the average psychiatrist has very little tolerance for this discussion. And they feel very defensive about it for two reasons. One, because it undermines everything that they've worked so hard for, all the mastery they've worked so hard to acquire. But also because they don't really have a good alternative to offer their patients.

So I think I was in a good position to open myself to this information because I had already cultivated some degree of education and potentially expertise in it in a whole new modality. So I had barely need my prescription. And if I never had one again, I would still be able to practice exactly how I practice. So that's not something most psychiatrists—unless they are analytically trained and they use psychotherapy as a primary intervention—they just don't really have too many other options. So they would feel naked if we were to take away their clothes in this form.

**James:** That's so thoroughly interesting to hear that. It doesn't sound like a particularly, let's say, scientific strategy. It's just sort of like people putting their fingers in their ears and just saying, "La la la la la." It's just a lot of hoping that it will go away.

**Dr. Brogan:** Yeah. Yeah.

**James:** And it does seem that the evolution of psychiatry, which is what we're talking about now, is really an opportunity to see that, yeah, there are obviously big problems. It's not like these issues don't exist. But it's an evolutionary thought to understand that we need new strategies to deal with them for chronic issues.

**Dr. Brogan:** Yes. Exactly. Because we have to look at the fact that whatever you want to say about the corruption, even at the level of these placebo-controlled trials that are

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used to approve antidepressants, for example, they're really only conducted for about six weeks. And patients remain on these treatments for the better part of their lives. And now we're starting younger and younger and younger. You know, as young as two. And we're just conducting a population-wide experiment in the context of, at least the available long-term data, that's pretty condemning.

And I think for the most part psychiatry is no different than any other branch of conventional medicine in that what physicians are practicing in their office is consensus medicine, right. So it's habitual medicine. It's some sort of passive agreement among often self-appointed experts about what is the gold standard, right? And what are we going to agree to offer our patients? And how are we really going to dismiss anything that affronts that belief? And that happens in obstetrics and in primary care.

And there is a provocative paper that talks about a seventeen-year lag between what's evident in the literature, as far as what might dictate a change in practice. And the time it takes to actually influence the doctor in his or her office. So we're really dealing with often decades of catch-up time before we can try to synchronize what the data is suggesting and signal of harm, for example, that might be emerging in day-to-day clinical applications.

**James:** Yeah. Well, as you know, with the Functional Forum, the tagline is, "Accelerating the evolution of medicine" because that seventeen year issue is a big problem for me because I guess I would ask you the question like, "If we carry on doing what we're doing right now for another seventeen years before we understand some of what you're talking about today, what would be the outcome for society? What would society look like in seventeen years if you extrapolate out what we've been doing now for another generation?"

**Dr. Brogan:** I think we'd be looking at levels of chronic disability at the population level and globally that is going to cripple our healthcare system, number one. And, ultimately, is going to have ripple effects in terms of economic growth and psychosocial, spiritual ramifications as a species, really.

And I know that that may sound very doomsday. But the fact is that because of the nature of psychiatric diagnosis, because it's impressionistic, because psychiatrists don't have blood tests or brain scans or EEGs or EKGs or really any objective metric for diagnosis, you can imagine that the room for expanding the umbrella under which patients can possibly fall is really infinite to some extent. And that's what we're seeing.

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So we have skyrocketing—really almost exponentially—skyrocketing numbers of children, adults, pregnant women, elderly who are coming under the umbrella of psychiatry. And it doesn't seem to be stopping or slowing down even in the face of data that is suggesting that these medications are ineffective. They're largely unsafe. And they may be contributing to chronic manifestations of these symptoms that would otherwise have just been potentially even a single episode.

So we have already data to suggest that depression, for example, in children is the greatest form of disability. And in adults, it's climbing up to the top three globally. But we don't really know what depression is. We just know it's a label that buys you a lifetime of medication. And I would echo the opinions out there that suggests that the medication that is used in treatment of depression's actually contributing to the problem rather than resolving it. Otherwise we wouldn't see, with growing prescription numbers, growing disability which is what Whitaker exposed.

**James:** Exactly. And that goes across quite a lot of different disease categories, as well. It's not just this part, the psychiatrists.

So just coming back to your manifesto for women's health, it seems like there's five main sections that you're interested in: mindful birthing and mothering. There's Paleo, obviously, dietary side of things. You're interested in reforming psychiatry, integrity in food, and environmental medicine.

Are these the five areas that you feel are like the leverage points to be able to make more significant change? Because it seems like maybe we can go through each of them in turn and see how you feel that those are causing...Are these the causes that are manifesting in these psychiatric issues down the road?

**Dr. Brogan:** Yes. So I think that if we look through the lens of depression as a template, we can appreciate that the most promising theoretical model of the etiology of depression at this point in time is not the monoamine hypothesis, which is really what is paraded around the average psychiatrist's office as being the best explanation for why their patients are symptomatic and is prized by pharmaceutical companies and their multibillion-dollar product in the form of SSRIs. So it's not that. It's actually most likely to be the cytokine theory of depression.

And this is something that began to percolate in the literature around the early 1990s. And now it's really exploding. And it's a means of attempting to link together many

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seemingly disparate systems. So sometimes it's called psychoneuroimmunology, which, of course, suggests the relationship between the brain and the gut and the immune system—sometimes it's called psychoneuroendocrinology—to tie in also the role of hormonal signaling. And our best understanding, at this point that's been elucidated, is that the role of intestinal integrity—so the epithelial lining, and also the microbiome in its gatekeeper position there—is highly relevant to the average patient with depression.

And it is because we know from animal models that leakage of lipopolysaccharide and triggering of inflammatory messages at the gut level can be transmitted systemically through the vagus nerve and potentially some other means, including directly through carriers of the blood-brain barrier level and transmitted to microglia in the brain that perpetuates that inflammatory signaling and also serve to set off the alarm disrupting neurotransmitter metabolism.

So shifting things from the tryptophan, serotonin, melatonin pathway to the kynurenine pathway, creating compounds that have toxic effects in the brain, like quinolinic acid. So we have a pretty good understanding of the relationship there, and it's relevance to clinical symptoms. We also know that when we resolve inflammation, either through pharmaceuticals like Celebrex, for example, we will resolve inflammation through that means or even through something like fish oil that we actually can predict resolution of symptoms based on decrease in inflammatory markers like interleukin-6.

So we have a pretty exciting model to work with. And it certainly is not going to encompass every single patient who has a descriptive syndromal depression. But that means we have to start to think about how do we prevent this, right? Because we don't have great tools in any branch of medicine—natural or conventional, really—that is a one-size-fits-all fix. So our best bet is to try to prevent it. So how do we prevent it? We protect the integrity of the microbiome. We protect the integrity of the immune system from toxic offense.

And that really starts epigenetically in utero. So I would love to have met my patients when they were in their mother's womb because I really feel like it would be a slam dunk. And I would know what to recommend to them. So that's why I developed—in addition to having been pregnant twice myself and doing a lot of my own research—I developed a passion for intervening ideally even a couple of months before conception.

Because we now understand that there are epigenetic influences that actually predate actual conception and that could be passed down through generations. So, of course, you could just try to reel it back 150 years and feel the need to intervene then. But we

still can intervene even in adults in terms of what's called the Exposome. So we can think about all of the different variables that are influencing epigenetic expression even in adults. But the best way to do it is to start with birth.

So supporting appropriate epigenetic expression during birth, supporting national birth, supporting breast-feeding, and moving through the world with an eye towards food-based toxins, chemical toxins, and, of course, stressors that are going to deleteriously affect this neuroendocrine connection and potentially manifest in one patient depression, and in another patient cancer, and in another patient, autoimmune disorder, and in some patients, all three. So that's really how I've tried to conceive of them as all being highly connected.

**James:** It reminds me of this book that I read a couple years ago when my wife was pregnant, which is *Having Faith* by Sandra Steingraber, which was an ecologist's view of motherhood. And it was one of those books that is so eye opening, but also you can only read a chapter at a time just because you're absolutely furious and overwhelmed of what you can't do anything about.

I think one of the things that's frustrating for people and doctors alike. They're always looking for one cause why this has happened. And it just seems that since 1960 about—or even since the Industrial Revolution—there have been so many changes to environment and food and medicine as it has been, that we'll never be able to go back and pick apart one cause because it's all interrelated. And there were so many variables that were changing in such a short period of time.

**Dr. Brogan:** Absolutely. And because we're never going to be able to standardize the risks of these exposures in any sort of meaningful way. We're never going to be able to say, "This amount of bisphenol-A," "This amount of mercury," "This genetically modified food," "This amount of pesticide is going to be dangerous for one hundred percent of people." Because the fact is that we are bringing our own genetic variables to the table.

And we're also bringing our endocrine systems to the table because what we're understanding in the toxicology research is that cortisol, for example, and essentially the HPA axis overall is a major determinant of how toxic an exposure actually is. Things like dioxin, for example, in breastfeeding women. There has been some southeast Asian studies that have suggested that it's actually their endocrine system that determines their vulnerability. So there's just a web of, as you say, of interconnectedness that really argues against dismissing the potential toxic risks of some of these exposures and really begs us to activate the precautionary principle.

With this signal of harm, we must cease and desist until we have enough reassuring data to suggest that for, at least the vast majority of people, this is not going to represent a risk, or until we have a way to risk stratify, until we have a way to identify those patients who would be put at risk through this exposure.

And there's something of an effort to do that. One of the tests I can do for my patients, through a company called Genomind, is a panel of genetic SNPs, like a genetic variant that can help me to understand—of course, it's aimed at, for the most part, identifying what medication is best for them—but help me to understand who might be at risk for a SSRI side effects. Who might be at risk for weight gain? Who metabolizes things slowly and should have a slow titration of doses?

So it's really an eye towards personalizing interventions, which I appreciate, but, of course, in many ways ignores the fact that there are more comprehensive ways to send the body the signal that it's getting the information it expects to see. That it's not swimming in this totally foreign alien world of chemicals, absence of dense nutrients, and stress.

**James:** Yeah. Absolutely. So your goal with your practice is to alert people as early as possible that they need to think about this because of the long-term effects of it. So it starts even before conception and it runs through conception. It runs through juvenile and into adulthood.

What I hear from a lot of practitioners is, yes, prevention is great. And we need to do more prevention. But when it comes to the actual symptoms themselves, we still need to go with what we're using right now. The medicine that you're talking about using right now, functional medicine and so forth, is this actually...If someone is having a psychiatric emergency, if someone is having a psychiatric issue—an acute issue—is this medicine appropriate to be used at that time in conjunction with the current modalities? Is it acute medicine, as well as preventative?

**Dr. Brogan:** That's a great question. I think in psychiatry there's a lot of reflexive fear-driven prescribing because we don't like people behaving the way that acute psychiatric patients behave. We don't like them talking about killing themselves. We don't like them running around naked in the street. We certainly don't like them having homicidal thoughts and being potentially violent, although certainly that's a minority of the average psychiatric presentation, despite popular conception.

So I see a lot of very sick patients in my practice, patients with schizophrenia and

bipolar disorder. I also see the walking wounded, I guess. And I think I really at some point have shed a lot of the fear and recruit their support system so that all of us can just tolerate some of the symptoms without this reflexive need to suppress them.

And some of the most interesting discussions around recent data...A study just came out this week, a twenty-year longitudinal study by Haro, et al looking at treating or not treating actively psychotic schizophrenic patients. And the fact that when they were treated with psychotropic for most of the follow-up visits over twenty years, they not only remained symptomatic actually, but they also had lesser functional outcome relative to those who were not treated, who were symptomatic for a period time—four and a half years of the twenty years—and then actually went on to have resolved symptoms and a better functional outcome.

So some of this is just tolerating the natural course of symptoms, right. And I certainly don't believe in watchful waiting. I'm very outcome based and actively engage in resolving my patients' symptoms. But my perspective at this point in my career is that I really see no role for psychotropics because I think that we've been sold a bill of goods on what they do, on how they do it, and on why our patients should be medicated with them.

So I've really, in many ways I think, radically broken out of the mold that I was stuffed into. And now I'm looking for other ways to approach it. The only medication that I do prescribe for new patients—apart from capering patients soft medication, which is the bulk of my practice—are benzodiazepines. So things like Ativan, Klonopin, Valium. If they're used for a very short duration, like meaning within three weeks, we know what they do, as far as we can know what a pharmaceutical does. We know what it does. We know its risk. They're pretty well documented and appreciated. And nobody's trying to pretend that these are not dangerous medications. And we know that they actually can have an immediate effect.

And for me, I can buy myself some time. I can just buy myself a little bit of time to implement a number of other interventions and to use, often equally effective, in my opinion, nutraceuticals. But when I meet a patient who is not in acute emergency, the types of interventions that I do in the first months when I'm awaiting further physiologic diagnostics are so basic and they're so high-yield that...It would be interesting. And somebody should do this study. Maybe I should do this study. And if we were to compare two-month outcomes, let's say, of lifestyle-based interventions versus medications, that study's never been done at least not to my knowledge.

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And I think people would be pretty shocked. I think I get outcomes with my patients, again, with pretty simple interventions. Food, dietary modification, exercise, relaxation response that my colleagues cannot expect through a psychotropic that often takes multiple different trials, many, many weeks, and is rife with side effects that lead them down a path of complex polypharmacy.

So, yeah. I think a lot of it, though, is about the posture of the clinician and shedding this dark history in psychiatry of robbing these patients of their civil rights of locking them up and of forcibly feeding them brain toxins.

**James:** So what are some of these high-yield tools? If you could get every psychiatrists in the world in a room and shake them about the head and say, "Hey look, here are the high-yield tools that I use. Let's use these first in the first two months." What's the plan that everyone could be that's low-risk high-yield that would help to move people along in a safe and effective way?

**Dr. Brogan:** Yes. While personalized medicine, obviously, dictates that we use the tools that we do have available to us to make more specific and highly tailored recommendations. So when it comes to nutraceuticals, for example, using things like curcumin or magnesium or fatty acids, whether it's phospholipids or omega-3s, using probiotics.

So all of these really are best implemented—as any functional medicine doctor will you—are best implemented with an eye toward what is going to be the most high-yield for the patient? What have we learned about them? What have we learned about their gut, their adrenals? What have we learned about their autoimmune status or lack thereof? They're vitamin level.

So that's a tough thing to protocolize, right. But what's not, I can be a bit pragmatic. So I like to think about it in thirty-day chunks. And when I meet a patient, I essentially, for the most part, I don't want anyone in my office who's not willing to make these changes. And if they're not able to, then we can downgrade them to make them more bite-size. And often I will recruit the help of friends, family, or spouses to implement them. But I take these recommendations very seriously.

And so when I meet a patient, for the most part, I use a template of a low-carb, sometimes even a ketogenic diet. And that's based on a couple of different pieces of evidence. There's, again, a growing literature in psychiatry substantiating the role of a ketogenic diet in mental health outcomes. But then there's also this appreciation that

that we have for the link between depression, for example—which is the bulk of my practice—between depression and metabolic syndrome.

So metabolic syndrome is essentially what happens when your body has revolted against the amount of sugar and glycation that's been inspired by dietary exposures. And there is robust literature that suggests that inflammation is the link between states of depression and metabolic syndrome. So we know basically that sugar is a major driver of pathology. It can do that because it influences cortisol. It can do that because it influences inflammatory response, and because once you have enough adiposity, that becomes an endocrine inflammatory organ itself and perpetuates itself.

So I have tried to think about, "So what is the diet that stabilizes blood sugar? What is the diet that actually focuses on availability of the most coveted energy stores in all of the macronutrients, which is fat and specifically saturated fat?" So that really, if we want to put a name to it, is something like the Paleo diet. And when it's a very, very low-carb version it can be a ketogenic diet.

So based on a patient's symptoms and any evidence I have that they might have insulin resistance or reactive hypoglycemia, I will titrate the carb, the quantity, to what I think they're going to be able to tolerate. But, for the most part, that means that for the first months they're going to be eating meat, fish, eggs, nuts, seeds, fruit, and vegetables. Fruit, of course, is one of the things we toggle if we're looking for a more ketogenic version. So are root vegetables and starchy vegetables.

But, for the most part, a month of that version, of course, I've got to put the caveat that I am passionate about the sourcing of these foods. You know, only pastured meat. I would rather my patients never touch meat than have industrial meat. Only wild fish, only pastured eggs. And I advocate, at least for the therapeutic window, for one hundred percent organic diet or as close to it as possible so that, again, we can control for any external variables that are provoking the system. So that's the first month.

And then in my practice, I see women in my practice. And I have found that for the most part, while that is a high-yield—and it's an extremely high-yield intervention—that we normally need to integrate resistant starches. So things like potato, sweet potato. Even in some cases, things like white rice. So we integrate those after the second or third month. And we scale it up because we're all born with different copies, numbers of copies of amylase genes. And we bring to the table a different microbiota that help us to ferment or not ferment some of these types of starches. And so everybody is a bit different on that front. But that really ends up being fine-tuning.

And then for that first month, I also ask them to do exercise. And most of my patients who come to me symptomatic are not doing that. And I'm also somebody who hated exercising for the most part of my life. So I'm very sensitive to the lack of motivation around that. So I've come up with some basic tricks for literally starting with five minutes. I refer them to different programs like T-Tapp and different things that actually are fifteen minutes, things you can do at home.

And then similarly with relaxation response, I call from the mountain of data now that suggest that we can modify inflammatory expression. We can resolve symptoms of acute anxiety and panic and depression through meditation. But I don't want to scare my patients when I talk about meditation because meditation sounds like this highly cultivated art form that seems so accessible to somebody who can barely get out of bed. So we really start with, again, literally five to seven minutes a day. And we work up to twenty minutes twice a day until they're feeling better. And sometimes we use biofeedback devices like emWave is one example so that they can actually externalize some of the data that will help them to know that they're making progress.

And to me it's remarkable because I was taught in medical school and residency that diet has literally nothing to do with the type of pathology we're talking about. And, "Yeah, sure, exercise? Why not?" But we're really talking about using these as treatment interventions. And I think any holistic provider would probably echo what I just said. So it's not rocket science.

**James:** Yeah. Do you find that you get a momentum with patients where if they can do the first little thing and they get some results with it and they do a little bit of exercise, get more results with that? And then suddenly meditation doesn't seem like that much of a stretch because they've already conquered a couple of easy things?

**Dr. Brogan:** Absolutely! Absolutely! There's no question. So a lot of what I try to do with patients is transfer my enthusiasm to them because I do enjoy really tremendous outcomes in my clinical practice. And it's so fulfilling. And it's so gratifying. Again, it's the beginning. It's about a transformation. And I feel like I see my role as ushering them through this transformation so they can engage their life from a place of empowerment and not from a place of victimization.

So when they see that the tools for their wellness are their own decision making, really, and are available to them at all times, the prospect of symptoms cropping up at some point in the future is a lot less scary than it would be otherwise if they feel totally dependent on a medical and pharmaceutical system and a physician.

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So my goal is really to transfer this feeling of empowerment to them. And once it starts to happen, it's just an amazing thing because then my patients become really hungry for more tips and tools and information. And that's where the digital age becomes a glorious thing because there's just so much information out there. They really don't need me. I can help point them in the direction. But the idea is to really graduate them from my practice. It's never more gratifying than when I'm done treating a patient and they don't need me anymore. That's the goal!

**James:** That's the beauty of doctor is teacher, really. You come in. You provide a little bit of teaching. And you inspire something in them that comes from within that no is being driven from outside. And suddenly they're in a sustainable solution. And you've done your job. And that must be gratifying. That's a win for everyone. But it's almost exactly the opposite of what the plan is right now.

**Dr. Brogan:** Exactly, which is creating a new normal and dependent relationship and the tolerating chronic symptoms. The prospects are pretty dismal. And that's not to say that there aren't patients out there who feel they have benefited from conventional psychiatry and have no complaints. But I would argue that there are elements of these medications and their effects that are just becoming clear to us now, like effects of antidepressants, for example, on methylation patterns, effects on glucocorticoid receptor sensitivity, effects on mitochondrial functioning.

And really the other shoe has yet to drop, I think, because these medications are, in the scheme of things, relatively new. And as you said, because we have a synergy of so many different toxic exposures that for the signal to emerge, it takes a long time. But we have reason to believe that even if you're feeling well on our your medication that there may be more to its effects than meets the eye. And that it might be a bit of a whack a mole. So and so, "Yes, we've controlled your depressive symptoms," for example. And might it crop up in some other realm as some other untoward manifestation of chronic disease, whether it's immune-based or oncologic process or something like that? But that's not been demonstrated.

**James:** It can be anything, right?

**Dr. Brogan:** It can be anything.

**James:** Awesome! Well, that's been extremely comprehensive what you've shared so far. And I think those are great tips for patients. And also for psychiatrists, why not just start this process. And during this summit, there's a lot of other tools for doctors on how

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to... I could see a psychiatrist and a health coach working really well together. If you're a psychiatrist that's scared of this, you don't want to do it. There are plenty other professionals out there that would love to connect with you and work with you and borrow on your credibility as an MD to be able to help to put together plans for the psychiatrists. So I really feel that's part of the evolution of medicine, as well.

But I can't let you go here today without talking about my two big passions in this area, which one is biome and the other is the technology. So if we go with the biome first, it's obviously more and more clear that the microbiome is playing a massive role in mental health. And it seems like here with the biome is an opportunity again to have an almost zero cost shift to increasing the biome for a number of reasons. One, there's obviously a correlation with psychiatry and mental health with gut microbes. It's only just starting to be seen as a function of that cytokine theory that you spoke about.

But, two, it also seems that—and maybe this is the actual pathway of how it's working,—but more microbes dense, more varied microbes in the gut, leading to less inflammation. So there's a synergistic effect there. So can you just go into, what have we seen already now with this research? And what do you expect to see in the new research that's being done? And where do you feel this leaves us for the future of psychiatry and the microbial end of it?

**Dr. Brogan:** Yes. So there are a number of animal studies that substantiate this bidirectional communication. And the vagus nerve, as I mentioned, seems to be the greatest candidate for how messages from the gut and exclusively the microbiome can be communicated to the brain, and how reliant the trafficking of that information is on hormones like cortisol, for example.

But there have already been double-blind, placebo-controlled randomized trials of probiotics—basic strain lactobacillus or bifidus active probiotics—that a demonstrated alleviation of anxiety symptoms, for example, within thirty days. So the data is accumulating. It's accumulating not only in animal models, but in humans. And it's suggesting that, as you mentioned, alterations in microflora actually have behavioral manifestations.

There's even some funny studies that have fecal transfers between rodents and changes in their behavior, as a result. And I think on some levels that was potentially the tipping point where we all looked at this and said, "There's something here. There's something to this."

But we're really just beginning to appreciate really the vast role that the microbiome plays. And how the heterogeneity of the genetic information in the microbiome relative to the human genome is just so overwhelming. We've outsourced so many functions. For example, there are at least a 144 different bacterial species that are able to break down gliadin peptides for us—so gluten proteins—in ways that we as humans are physiologically incapable of doing because of the prolamine nature of these grains, for example.

So it's just one example of how we've co-evolved within this ecology. And we really need things for our physiology to function optimally, we need to work in concert. And so we think about things like glyphosate and roundup and herbicides that now we understand can actually really decimate gut bacteria. We think of endocrine disruptors. And some of the effects that they have are actually in misregulating inflammation at the gut level.

We think about how stress can influence levels of IgA and how that secretory IgA and how that can actually permit pathogenic growth. So it's never going to just be as simple as we want it be, which is you have depression or anxiety. And you take a probiotic. And you're better. I'm sure there are some cases. And I've read about some cases my colleagues have had that were that were that simple. But, for the most part, it's going to be about thinking about how we can protect this microbiome. And hopefully, ultimately how we can restore it. But really restoring it is probably not going to look as much like throwing bacteria down our mouths as it is facilitating our own immune system's ability to foster this type of ecology internally.

And, listen, we're at the beginning of this road. But I certainly think it's where things are going. And we do have some tools. In my practice most of my patients do a stool test. It's a three day test. And the test is for beneficial bacteria, for potential pathogens, for things like fungus and parasites. And it's a keyhole view, for sure. It shouldn't be overvalued. But at least it's a launching off point. And often, it's in many ways, I think, how and why I get the outcomes I do because it helps to direct, at least, the tools I do have available.

And the fact is, even with our limited tools at this point and in natural medicine, the tools that we do have are so benign. And the safety profile is so incomparable to pharmaceutical alternatives that it seems like the only sensible place to start.

**James:** Yeah. Absolutely. And we've had other experts on the microbiome in this summit and other places. And one of the things they're seeing, as well as that, nature, getting into nature and just being in nature is really an effective way of adding microbes

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and a really vast array of them. And so you can see how adding this part in whether it be prescribing going into nature or probiotics or otherwise, this should be part of that first thirty days, too, if you really want to bring together a strategy for that.

Obviously, you don't want to overwhelm people. You don't want to just add more stuff to things that they're not going to do. But if you're really looking to make a strategy that is going to help the most people, it's got to include those kind of things, too, right?

**Dr. Brogan:** Absolutely. There was recently a really great paper on this of fermented foods. It's a simple and perhaps a more intelligent way and certainly a more ancestral way of introducing these "beneficial bacteria" or probiotic bacteria now sometimes dubbed psychobiotics into your system, and really leaving much more up to this, again, this co-evolution and the tenets that underlie that than we can actually divine through our intellects. A probiotic is only as good as we understand it to be. But that's the beauty of food-based medicine is that there are things and information transmitted through a high nutrient-dense diet that we can barely wrap our heads around at this point. So more powerful.

**James:** Yeah. Exactly. So much good stuff to be able to work with on that. And they're definitely coming back into fashion. And just in time, too.

So the last thing I want to ask you doctor with this evolution of psychiatry is one of this new evolution that we're seeing in medicine is an ability to be able to get data way upstream of what we've been able to get. And data that comes outside of just what's being done in a doctor's office, testing with wearables and with the digital revolution. Soon there'll be lots of different ways we'll be able to track all kinds of things.

As you move forward here—and maybe this is almost like a challenge to the techies out there who we want to help reform psychiatry. If you're a techie and you want to help reform psychiatry—what is the data that you would be looking for to get in the future upstream to be able to give you a really good idea of how we could really help people to, one, ideally prevent and avoid psychiatric diseases. And then two, to ameliorate the psychiatric diseases they have with natural means? What is the data you'd be looking for? And are there other areas about that that get you excited just because this is about to explode?

**Dr. Brogan:** Yes. So I think some of it is already happening. I certainly think, as you alluded to, the sequencing of the microbiome is going to be such a boon to all branches of medicine and to medicine at large, and to health and wellness on the whole. So I very

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much look forward to the day that I can actually get a much more specific snapshot into what the gut status is of my patients and to make sense of how I can enter.

And sometimes I think that the direction that medicine has to go is really away from the randomized controlled trial and really more towards individualized case studies because I would love to have simply data because I've done this on myself over the years. I check my own blood pretty much monthly. And I experiment a lot with natural compounds and different diets and different lifestyle interventions. And I've been able to really learn a lot about, at least, some potential outcomes like, so what happens to that microbiome, let's say, when you do take, I don't know, 200 billion colony-forming units of bifidobacter for six weeks?" But we just need simple objective information, at least, from model patients, model cases to help us start to appreciate cause and effect and to convince those in the office of the potential impact of these simple and safe interventions.

But I think probably the most—I'd be remised if I didn't mention this in response because I think the most interesting technology plus health personalization method now is coming out of a place called the Heart Map Institute. And they've just done some really tremendous research using a metric called the heart rate variability, which is, as far as we can understand, a very good indication of what's called coherence or electrical resonance between the brain, the lungs, and the heart that really only occurs in states of relaxation or calm awareness.

And so it's been used as a metric. It's something you can detect as simply as placing your thumb on a credit card sized sensor. There's actually even an iPhone app called GPS for the Soul that tries to use this technology. And it's a means of identifying where you are on the stress spectrum and also helping you in a personalized way to recalibrate. So that's why it's called biofeedback. But this is a way of bringing what we understand about physiology, using technology to assess it, and then bringing it into the hands of the individual patient to leverage for their own benefit.

So I can imagine that there would be many different examples of that once we start to identify what are meaningful metrics of whether it's inflammatory cytokine levels or secretory IgA or the microbiome or cortisol levels or thyroid. Whatever we start to focus on as being the things that actually drive psychiatric pathology and we really start to let go of the fact that it's all about low serotonin, which it isn't. I think we can really expand our horizons in terms of, again, personalizing medicine through technology. So I think it's super exciting.

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**James:** Yeah. And surely stress and sleep and those kind of things are going to become more and more aware. I think stress just plays into so many different types of issues. I think that for me is very exciting. I've been playing with a piece of equipment, which is like a watch. And you're green if you're not stressed out. And then if you suddenly get stressed out, it goes red. Then you can realize, "Hey, I am actually stressed out. And it's having a physiological effect on my body. At least now I know it's happening, and I can take whatever action I need to take."

I can't help but think that that will be extremely important in these psychiatric diseases because it just seems like this chronic stress must be driving the inflammation, must be driving a lot of other areas that's causing the end result being these psychiatric diseases.

**Dr. Brogan:** Absolutely. Absolutely. So it's a place to enter. It's a leveraging that we can do through...It's a lens we can look through, I guess, to appreciate all of the levels of interconnectedness. But I also am a big advocate for mindfulness and for this idea of what I described with my psychotic patients, this idea of really just sitting in tolerance and hopefully nonjudgment of where you observe yourself to be at, rather than trying to fix things all the time because I think we can really work ourselves...

I work with a lot of new moms. And I really appreciate that that mentality is very activated. Everything has to be fixed. All the problems have to be addressed. And I think really sometimes you resolve the physiologic effects of stress just through letting go of the compulsion really to fix everything including your thoughts—including negative thoughts. And instead you're letting them come in and come out. Like a wave come up to the shore and recede rather than trying to jump in and stop the wave from happening.

**James:** That's huge! Well, I think this is all part of this evolution. And there's common themes across of these areas. But I think just with the acute nature of the psychiatric issues that we're seeing, just how many people are suffering from these issues, whether you're a psychiatrist listening now, whether you're another health professional, whether you're a patient who just wants to get ahead of the game, what we've spoken about today, I think, represents a new dawn in our understanding of these psychiatric illnesses and what we're going to do about them.

And I, for one, am extremely grateful and appreciative to have had your time here today, Dr. Brogan. I really appreciate it. I think that it's almost like if you're going to see a psychiatrist or even Dr. Brogan in New York, just listening to this gives you a really

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good idea of where you're coming and the hope that exists in this new model.

And I really appreciate you taking time to share these thoughts. And I really believe that as this medicine evolves and as this Evolution of Medicine Summit evolves over the next few years, it would be great to have you come back and look at the state of change that we're impacting because I can't help but think that bigger organizations are going to catch on to this and say, "Hey, look, we can't deal with these costs of going down this route for another seventeen years. We need to start catching it now." And as soon as those cost structures change around, we'll see some significant change. And I really hope that this is the genesis of that moment. So thank you!

**Dr. Brogan:** Absolutely! I couldn't be more enthusiastic about the mission behind this and really from learning from each other because if nothing else, I try to remain in a very humble position about what I do know and what I don't know. And I think that that's actually part of progress is identifying and feeling comfortable with much that we don't know. So I hope that over the years, as you've said, this conversation evolves tremendously. And I'm totally ready and excited for that. And I think that you'll probably be a very big part of it. So thank you for having me, for sure.

**James:** No problem, Dr. Brogan. Well, you can find out more about Dr. Brogan at [KellyBroganMD.com](http://KellyBroganMD.com). She writes for all kinds of organizations and publications and is just a wealth of good information. If you follow her on Facebook, you get all of the best stuff there. Thanks again, Dr. Brogan, for being on.

This has been The Evolution of Medicine Summit. I'm James Maskell. This has been the evolution of psychiatry. It's an exciting time for medicine. And again thanks so much, Dr. Brogan. And we'll see you next time!