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John Moe: A note to our listeners: this episode contains references to suicide.

Transition: Upbeat acoustic guitar.

John Moe: I have good news. Treatment for people with depression is better than it was. And it's getting better still. So, that's good news. God, I love good news!

It's *Depresh Mode*. I'm John Moe. I'm glad you're here. That's good news!

Transition: Spirited acoustic guitar.

John Moe: I'm glad you're here, and I'm glad to share with you some new findings from the scientific community on this week's show. My guest on the show this week is Dr. Leanne Williams, who's got a long job title. Buckle up. Professor in Psychiatry and Behavioral Sciences at Stanford University, also the founding director of the Stanford Center for Precision Mental Health and Wellness and of the Precision Psychiatry and Translational Neuroscience Laboratory at the Stanford Medical School. Smart person.

There was a word in there, probably flew right by you: precision. That is the focus of what we're talking about with her today. Dr. Williams recently released findings of a big research study having to do with precision treatment for people with major depressive disorder that is finding specific means for treating depression depending on the brain and brain activity of a particular patient. They conducted what are called functional MRIs, which is like an MRI but in motion, like for a video. They did this for a large group of people, like 800 people—some with depression, some without. They found specific types of depression brains and were able to match them with particular treatments, specific meds, therapies like TMS or particular talk therapy approaches.

This is good news, because it could signal a reduction in the method so many people run into for treating depression. Which is often, "Just try a bunch of stuff and see what works." It means we're more likely to identify what could work early on and try that first. Which, if you've ever tried to treat depression, sounds freaking amazing.

Transition: Spirited acoustic guitar.

John Moe: Dr. Leanne Williams, welcome to *Depresh Mode*.

Leanne Williams: Thank you, John. Thanks for having me and covering this topic.

John Moe: It's an important topic, and it's a very interesting field that you're in, even within psychiatry. Could you explain the idea of precision treatment for depression?

Leanne Williams: Absolutely. So, the idea of precision treatment is that we can use tests or measurements to get at the root cause of what someone's experiencing when they have

depression. Meaning, in my case, to get at what's going on in the brain underlying the symptoms, so that we can identify which treatment might be helpful for each individual person. And this is recognizing that—which you know well, from how you've covered this so beautifully—depression is such a one size fits all category that's not well understood. It's kind of—it's almost like a grab bag collection of symptoms, but each individual person has their own particular profile of symptoms and may have a different underlying cause.

So, the goal of precision treatment is to really get at that underlying cause in order to determine what treatment could be more helpful versus another. And that saves what is the current situation of usually people cycling through in this kind of a trial and error process of try one treatment, see if it works, but not really having anything tangible to know why is it not working or what would work.

John Moe: Well, it could be so frustrating too for the person going through it, because it can feel very unscientific—this approach of like, "Well, let's try TMS, and now let's try these meds, and let's switch up these meds halfway through." It can feel very slapdash.

Leanne Williams: Right. And it's interesting, because you can think of, you know, so many other areas of health and medicine where we have complex health conditions that have also got a lot of stigma around them. So, cancer used to be, you know, the silent killer. Very stigmatized, very complex. But now we do have a lot of data and measurement and science, as you say, to really pinpoint what is going on and what treatment to quite a precise level.

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And our field is very new to this game. And so, you know, we have incredibly dedicated clinicians and health professionals, but they can only use what tools are available to them.

John Moe: Well, let's talk about some of the tools, some of the research that you've been working on lately. Because it really made us kind of sit up and pay attention when we read about what you're doing. And it involves MRI mapping of the brain to identify I guess what you call biotypes—different strains of depression or different images of what depression looks like on the inside of a brain.

Leanne Williams: Right. Strains is a good way to describe it. And it is a transformation, going from the current situation where essentially we're asking people to self-describe what is going on for them—you know, tell us what you're feeling and having someone interpret that. So, maybe I make a sidestep and say—let's say I was seeing someone who was experiencing chest pain. You wouldn't expect for that person to be able to say, "I know this is because the electrical function of my heart is disrupted. Or actually, you know, it's not that. It's like I have a blockage in the plumbing of my heart. Or actually, I'm just going through a lot of stress right now, and there's nothing wrong with my heart." Like, it wouldn't be possible to know.

So, what's happened in cardiology and also in cancer medicine is we have a way to take direct images of the relevant organ of the body. So, for cardiology, that's the heart. For cancer medicine, it could be a number of different organs. And what's happened in the last more than a decade, but particularly the last decade, is we now have a way to image the brain in action. And we can use the technique called Functional Magnetic Resonance Imaging to actually

map out how the brain is responding and connecting to these very human functions we have that get disrupted in depression. So, those—

John Moe: You say Functional Magnetic Resonance Imaging. How is that different from a regular MRI?

Leanne Williams: That's a great question. So, a regular MRI would be like taking a still photograph of your brain. It would do it in very high resolution, and you'd understand the anatomy. So, do you have damage to the brain or volume changes?

We take more like a video with functional MRI. So, multiple snapshots over several minutes. And that's what allows us to see how the brain is actually—like how the blood flow is moving around. And you can pick that up. Yeah.

John Moe: And so, then how was the research conducted? Do you use people who are already dealing with depression, and then you took these functional MRIs of their brains?

Leanne Williams: We do—we've assessed many, many people who are already experiencing depression to interpret what changes with depression or what's disrupted. We also have assessed a lot of people who don't have depression. So, it gives you a benchmark. And then we do treatment studies where people come in. They may already be going through that process you were describing, trying a medication, maybe TMS. So, in that case, we would actually ask them if they're willing to come off the current treatment, so we can get a baseline. And then we do the functional MRI. And we look at, then, what treatment might be suitable, given what we see.

John Moe: And then—you know, I didn't get far in science in school, so I'm going to just try to keep up with some of this myself. But how do you know? Like, given this sort of clip of that you have of the brain through the functional MRI, how do you match that with the different treatments? The meds or the—you know, the other treatments, to know what corresponds?

Leanne Williams: Right. Well, that is always—that's the key question.

John Moe: That's the big one, I suppose. Yeah.

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Leanne Williams: *(Chuckling.)* Yes. For the past nearly two decades, I've been studying this area and so have others—colleagues in other labs and centers. So, we've built up this knowledge about using the functional MRI in studying all these different treatments to see what type of biotype—and I'll explain how we get to the biotype—what biotype for each individual is associated with doing well on a particular treatment and what is associated with not doing well.

And because we have that evidence, we then—I've developed recently a method where you can quantify that biotype for each individual person and go back to the evidence and say,

“This is the one that matches for you.” By no means have we studied every possible treatment, but we're accelerating the number of treatments that we have this matching for. So, that's the way we go about it. So, it's a kind of a lookup table for saying, “If you have this biotype, we know you're not likely to do well on the standard SSRIs, but you are likely to do well on TMS.” So, that's a way to fast-track someone to TMS and skip over the trial and error.

John Moe: And when I've seen coverage of your work, there's a specific number attached to this. It says they've discovered that there are six different types of depression. Is that a fair assessment of the research that you've done? That it's this finite a number that we can put our thumb on?

Leanne Williams: It's six right now. I would be surprised if we don't either find more or fine tune them as we go along. And we could go back to that analogy with cancer medicine, whereas more and more discoveries are—there are more and more discoveries or more data, there's this opportunity to identify or refine the types of cancer. It's a similar idea.

The reason I have started with six is, in the way our brain functions, we have—you could think of them as almost like superhighways, if you imagine a map of a complexity. There's these superhighways in the brain, which are regions of the brain that connect together. They activate together to support some really important functions.

Transition: Spirited acoustic guitar.

John Moe: More with Dr. Leanne Williams and the six brain types of depression, what she's learned about them, how to treat them, right after the break.

Transition: Gentle acoustic guitar.

John Moe: Back with Stanford researcher, Dr. Leanne Williams. We've been talking about what she's found out about the six types of brains of people with depression.

Leanne Williams: So, one of those is being able to reflect on your own internal thoughts and memories, which is a uniquely human thing. Another is about how we react to negative emotion. So, in one form of depression, that superhighway gets stuck. So, we stay in that negative emotion loop or reactivity. Another one is—we call it cognitive control, and it's the executive highway of the brain, which helps us regulate our thoughts and decisions and behavior. And when that gets disrupted, we have that cognitive fog experience of depression.

So, I focus on six, because they're well described in general, in the field. And those six have been implicated in depression so far. So, I can pinpoint six biotypes based on those.

John Moe: And then in all of these six, is it an example of, “This is how the brain works, but this is where it's getting bogged down. This is the interruption. This is the clog in this particular part of the neurocircuitry that's leading to the depression”?

Leanne Williams: Yes. Exactly. So, you can think of it a little bit like—this is a very broad analogy, but when we think of our blood pressure, we have a kind of sweet spot for each of us in which our blood pressure can go up or down a little, but it's like our optimal range. Maybe sometimes it's stretched a bit. You know it goes a little high. And then if it goes outside that range, you may end up with hypertension.

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And then if it goes too far or maybe other things are going on in your life, it may be a big break—like, stroke. So, the circuits are a little like that in a broad sense. So, we're looking for the sweet spot, which is the kind of in the middle Goldilocks, and what is your range of function. And it can get stuck in at least two ways by going too low, so you don't have enough activity. Maybe there's one circuit which is responsible for feeling good. So, if that goes too low, you get that sense of being very numb, and the world's gray, not colorful, very hard to motivate yourself. In other cases, it's too much.

So, there's a—and that circuit I was talking about where you're self-reflecting, if that gets too high and too connected, you get in that loop of really caught in your negative internal thoughts, that internal loop. And if it gets too high, it's hard to kick out of.

John Moe: So, it seems kind of amazing and revolutionary as you talk about it. *(Chuckles.)* It makes me imagine a future where, if I'm experiencing depression, I go in, I get a functional MRI, and then—you know—it's, "Oh, okay, I need to take this med, and I need to do this treatment." And then, you know, that's what I'm going to respond to. And then we're all set. I mean, is it as simple as I'm imagining it to be? Like, it's almost like you're taking your car into the shop and putting it up on the jacks?

Leanne Williams: I believe that's the future we could have. And it is revolutionary for our field. It is occurring in other fields. So, that's where I draw inspiration from, where you could imagine a kind of one-stop shop that wouldn't be for your car, but would be for you to go in for your brain health, mental health. You could get the scan. Ideally, all the possible interventions and treatments are there available to you. And it could be the decision is, actually, you don't really need a treatment at this time. Maybe it's something more short-lived. So, I imagined that.

And it seems so new to our field, because it would be a big transformation. But there are other areas I think of also where I draw inspiration. So, if you think of migraine screening, it's a similar prevalence to depression. It's a lot of people, like huge numbers of people. But it's fairly routine to say, "Let's get a scan to screen for migraine, and let's come back and get another one maybe in six months." So, I would imagine a situation in which you could identify what is the most useful, likely to be beneficial treatment when you first come in. But it may change. I mean, you may either respond to that treatment, or some new situation may happen where you need to revisit that. So, I imagine coming back in for scans, it could be at regular times or as needed.

John Moe: Now, I know there's been an option available, a sort of scanning/screening option available in some psychiatrists' office—I've never done it myself, but I've heard of it being

done—where you go in, and you do blood work. And they come back, and they say, “Okay, you should be on Effexor, or you should be on Prozac.” How is that different from this?

Leanne Williams: It is complementary, I'd say. It's another piece of the puzzle in that the current bloodwork lab tests that I'm aware of, ones that would—they're like—they give you genetic information relevant to the treatments. The value of those, as I see it, is they really help work out which—based on your genetics—which of the medications are likely to give you side effects and which you may need a lower dose or higher dose of, because of how quickly you metabolize the chemistry involved. So, that's a completely complementary measure. So, you could imagine coming into this one-stop shop. You will get the scan, but you could also have the blood work done.

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So, it would be like—okay, if the scan suggests this particular treatment, say Venlafaxine, or—and then you get your blood work, and it says, “Actually that might cause side effects, or you might need a lower dose.” It'd be a way of really fine-tuning things.

John Moe: So, where does this leave talk therapy?

Leanne Williams: Talk therapy is still just as important as ever. I guess that—

John Moe: Okay, my therapist will be glad to hear that.

Leanne Williams: *(Chuckles.)* In two ways. ‘Cause in no way would I think of the functional MRI as kind of reducing someone just to a scan or, you know, their biology. So, two ways. One is it helps pinpoint when therapy might be useful. But also, there are multiple ways to change the brain. So, changing your behavior and your thoughts will also change your brain. So, we have one study where we find therapy actually does change some of these circuits. Because they're all interconnected.

The second way I think of it, going back to the cardiology example, is even if you said I do a scan, and it suggests maybe a medication would be helpful, the medication alone is not going to do everything. It's still lifestyle changes and the decisions you make as a person, same in depression as it is in high health.

So, you know, in that case, the therapy may still be important. Like, how do I almost go through the rehabilitation process if I've been going through this trial and error for a long time? You know, I may need to really think through how do I change my life now that it may be I have the right medication, but I still have to implement all the changes.

John Moe: So, how did this research come about in the first place, to approach it with this functional MRI and try to match that up? Was that inspired by stuff that's happening with cancer and with other conditions?

Leanne Williams: It was, yeah. So, this goes back nearly two decades since I've been doing research in the field. And it came about in two ways. One is just sheer frustration actually

doing the research and seeing how hit and miss everything is. And as a scientist, I say, “Well, can't we introduce some measurements?” *(Chuckles.)*

John Moe: Can't we do better than this?

Leanne Williams: Yes. And many of my clinical colleagues share the same thought. So, we have to do better. And seeing how many people are suffering and their families and saying, “We clearly need different solutions.” So, that was driving me to find what would be the solution. I didn't at first at all think it would be functional MRIs. So, I've looked at other measures. So, far it's been the most accurate and gives the most predictive power. And I think it's because it gets at the very deep regions of the brain that are involved in depression. You know, the emotion centers of the brain.

The second thing that inspired me was then, as you say, that there were these big changes happening in cancer medicine where they were really getting more precise. The third thing was around 2010, there was the launch of an initiative that you may have come across called—firstly, it was the Human Brain Project, more recently, the Human Connectome Project.

John Moe: Yes.

Leanne Williams: And that, similar to the Human Genome Project, was actually a project that mapped these superhighways of the human brain. So, it gave us the blueprint for being able to do this. So, having gone through different types of measures and seeing that functional MRI is really useful for treatment prediction in depression and with that blueprint, I'd say this clearly has a lot of traction. And the outcomes, they keep confirming that.

Transition: Spirited acoustic guitar.

John Moe: After the break, where is Dr. Williams’s research going next? And a very personal story about why she cares so much about the work she does.

Promo:

> **Music:** Cheerful music.
>
> **Emily Fleming:** I’m Emily Fleming.
>
> **Jordan Morris:** And I'm Jordan Morris.
>
> **Emily:** We're real comedy writers.
>
> **Jordan:** And real friends!
>
> **Emily:** And real cheapskates.

Jordan: We say, why subscribe to expensive streaming services when you can stream tons of insane movies online for free?

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Emily: Yeah, as long as you're fine with 25 randomly inserted, super loud car insurance commercials.

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Emily: From the good to the weird to the "Holy! Look at VanDamme's big ol' butt."

Jordan: *Free With Ads*! A free podcast about free movies that's worth the price of admission.

Emily: Every Tuesday on MaximumFun.org or your favorite pod spot.

Music: *Free with ads!*

(Music ends.)

Promo:

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Narrator: This season on *The Adventure Zone*, *Abnimals*! Get ready for a brand-new crime fighting trio, here to protect the anthropomorphic, muscular animal citizens of River City. Featuring Justin McElroy as Ax-o-Lyle, the firefighting axolotl. Clint McElroy as Roger Moore, the debonair cow of mystery. Griffin McElroy as Navy Seal, the raw seal that has never served in the Armed Forces. And Travis McElroy as every other swole critter in River City. This swear-free, Saturday morning cartoon inspired story airs every Thursday on MaximumFun.org or wherever you get your podcasts.

(Music fades out.)

Transition: Gentle acoustic guitar.

John Moe: Back with Dr. Leanne Williams from Stanford.

Where are you moving with your research next? Is it a matter of trying to find more of these biotypes, these different ways that people experience with depression? Are you moving on to other mental disorders? Or what?

Leanne Williams: I am, in three ways. So, one way is to really refine the biotypes. So, that's kind of using the power of the data that we have, but then pooling it with other groups who are interested in joining forces. Second, we really want to expand the treatments that we can match to the biotypes. So, that's kind of in a way going sideways to try and make more of those matchings of biotype to treatment available. I have collaborators who will expand to other areas, so ADHD is one. We do expand to anxiety. I have a colleague looking at obsessive compulsive disorder. So, that's a way to expand out. And one area we're very inspired by is how do we actually get over that gap of discovery to making this available. So. Also very focused on that.

John Moe: In terms of just having the accessibility to an expensive procedure like an MRI?

Leanne Williams: Yeah, yeah. And make it accessible.

John Moe: Yeah. I mean, is that your field? You're very brilliant in lots of ways, but does accessibility of care fall into your research?

Leanne Williams: Not directly, of course, but I do feel—I'm very motivated to show that we can use this clinically. So, we have set up a clinic that offers the FMRI at Stanford, and we make that available small-scale right now. But at least it shows how you would do this and if you can—for people who do have insurance, is it reimbursable? So, we've been testing that out. And then I'm looking at getting coverage from—or approval from the FDA, or at least clearance from the FDA—which would open it up to Medicare.

And that's also inspired by other fields, because what I'm learning is the cost of the test itself is equivalent to its use in all the other areas, including if you break your leg. But it's more that we don't have all the work, the kind of flow around it. Like, how would you support it and all of that? So, it can make it expensive in the research setting ‘cause you’ve got a lot of people around it. How to streamline it.

John Moe: And just—I want to make sure I cover all the bases on the different sorts of treatment available. Is there a scenario in which it comes back—they map your brain with a functional MRI, and it comes back that you need cognitive behavioral talk therapy; you need dialectical behavioral therapy, where it's not a matter of serotonin reuptake inhibitors or anything like that. It's just you come back, and it says, yeah, you need to just talk to a human and work your stuff out.

Leanne Williams: Yes, yes. And we have those findings. So, there's a paper in *Nature Medicine*, where we talk about these six biotypes that came out this year.

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And in that paper, we highlight one of those biotypes that does particularly well on the talk therapy. It's actually a problem-solving version of talk therapy. And we've done a whole study on that kind of problem-solving talking therapy. And also, if you combine it with other things, like almost lifestyle choices—like, we had people wear Fitbits and tracked how they were choosing their food choices and so on to just to look at whether you've got changes in how much more people are moving if they're feeling better.

So, I have absolutely no—I'm not attached to any particular treatment or therapy. It's more like what would work, and how can we find what would work for each person. I did start with the standard antidepressants, more for practical reasons that they're so commonly used. So, to kind of get a handle on what does predict those or nonresponse to those.

John Moe: Well, I mean, it's—like I say, it's really exciting work in that science, as it evolves, always seems to evolve towards specificity. It always seems to be able to zoom in. That seems to be the grand arc of science is to know more and more on an increasingly granular level. And as you say, the work you're doing is sort of echoed by a lot of similar work that's being done for other medical conditions. What do you imagine healthcare will be like in 20 years? You know, mental health care, physical health care. What future do you see, given your vantage point on the vanguard of this technology and this application?

Leanne Williams: That's a brilliant question. I do hope actually in 20 years' time that we'll have mental health more thought of as part of health, not separated out. I think that's happening. I see that happening. One of the studies we have is actually a collaboration with people who treat cancer, so they're seeing a lot of people experiencing depression post-chemo. So, there's that kind of cross link happening.

In the future, I imagine there will be this more personalized approach. And that will enable us to get a handle on how could you prevent something like a depressive disorder occurring. In my view, we currently wait 'til we're like a stage four of cancer. And we don't seem to have the urgency about pulling that back to getting something, a solution earlier, and then to be able to prevent a relapse. So, I'm not giving a very specific answer to your question, but I think it's a mindset change to get to that point in saying we can provide measures that give people a sense of understanding their own experiences. It's something tangible.

I think it busts the stigma as well. Because it says, "Okay, my depression is associated with this circuit of my brain that I can monitor over time." So, in that vision for the future, what I would—clearly things are also going to a lot of digital metrics and how do we have more ownership over our health information. So, one way I think about that with the biotypes, when now—we have a study going on now where we're looking at, if on your smartphone you have a set of—like, you have a simple set of tests or questions, can they map onto these biotypes? So that you'd have a more daily or a more granular way of tracking a proxy in a way or a surrogate for the biotype more remotely. So, you'd know when does it look like I need to come back in? That vision of the future.

John Moe: So, it's in the interest of prevention. It's in the interest of before it reaches a crisis point. Yeah. Okay. As listeners to our show know, I've been guided in my effort to kind of raise awareness and increase dialogue about mental health due to the loss of my brother to suicide some years ago.

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And I understand that, unfortunately, you had a similar experience. And I wonder if you could talk about that and how that's informed your work.

Leanne Williams: Yes, absolutely. And I really appreciate the way that you have made depression a—like, talked about in a real way. *(Chuckles.)* Like, your *Hilarious World of Depression* I think is such a great example.

So, in my case, this was my partner going back several years. He had suffered from depression for a long time. He was an ER physician. So, he would talk about it, and he'd say, "Okay, I'm a physician. So, rationally I know that I should be able to seek treatment for it like any other illness." But his concern was if he did that, it would be on his record, and it would jeopardize his career.

So, the stigma was so powerful. Well, to me, that was the—that's such a powerful example. Like, here I am specializing in this. A deep irony: I'm specializing in it, but I cannot convince him to get treatment, cannot save him. So, yeah, he took his own life. And that was like—I guess I took the energy of that or the impact of that, the shock of that, to really decide to channel it into doubling down, and we've really got to get solutions. So, kind of that personal experience, it's like we really have to; this is affecting too many people. And that kind of confrontation of just how extreme the stigma is—and that no matter what we say, we found as researchers, we're not able to have it make a difference. So, we have to change that.

John Moe: Do you find that the work that you do—? And I'm sure it's not every day, because I'm sure you have frustrations and setbacks like all of us do in all of our work, but do you find that the work that you do now increases your hope for what mental health and its role in society is going to be?

Leanne Williams: Yes. Yeah, I'm very optimistic, I think in a realistic way. I think also that aspect of the work that does help address the stigma by providing a new explanation kind of gives me an extra optimism that things will change. And I see that happening.

So, for example, clearly one good thing—although it's awful news—is more and more people are willing to speak out. So, we hear—you know, in the media we hear of people who are well known who are dying by suicide. You know, we hear it often, which reflects just what a crisis it is. And you hear that refrain of, "But this is someone who's successful and productive. And I couldn't tell from the outside."

So, I've found that having a way to explain it from what's going on the inside and the brain circuits and that there are these biotypes that can create that kind of angst of depression—even though you don't see it on the outside, and someone's very productive, they can maintain a very successful life—helps, in a way, break through what is a confusion of having a label like depression. 'Cause it breaks away from "This is just feeling sad," which of course we all feel.

John Moe: Right. Well, and it takes away—the more you find these anomalies and these tendencies and these paths that the brain of a person with depression, with major depressive disorder has, the more it eliminates this idea that, "Well, you're just feeling sorry for yourself, or you just need to go for a walk, or you need to do these other things." No, there's stuff happening in the brain. There is a map that you can see.

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You know, it's like rush hour traffic. You know? You can't just drive 55 miles an hour when there's cars blocking the road. *(Chuckles.)* And you shouldn't feel bad that you can't drive that way, because there's cars in the road.

Leanne Williams: Right. Yeah. That's such a great way of putting it. Because there's a lot of self-blame. Which makes sense, because of the idea that "Oh, this is a character flaw," or "You can't try hard enough." That kind of thing. And when I was first getting into the functional MRI, I used to think of it as, well, what if someone broke their leg, but they didn't actually know if it was broken. Or maybe it's sprained, or maybe it's not sprained, but it's just feeling bad. You wouldn't say, "Can you just hop around on it for a few weeks and see if it gets better?"

(They chuckle.)

John Moe: Yeah. Go out and have some fun. Then you'll forget all about your broken leg.

Leanne Williams: Right. Like, just try a bit harder, and I'm sure that your leg will heal.

John Moe: You're going to make your legs so much worse. Dr. Leanne Williams, I want to thank you for the work you're doing and thank you for spending some time with us. It's a very hopeful conversation. And congratulations on all your research.

Leanne Williams: Thank you, John. I really appreciate it. I really enjoyed the discussion with you.

Music: "Building Wings" by Rhett Miller, an up-tempo acoustic guitar song. The music continues quietly under the dialogue.

John Moe: Dr. Leanne Williams is a professor in psychiatry and behavioral sciences at Stanford University, also the founding director of the Stanford Center for Precision Mental Health and Wellness and of the Precision Psychiatry and Translational Neuroscience Laboratory at the Stanford Medical School.

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Our Instagram and Twitter are both @DepreshPod. Our *Depresh Mode* newsletter is on Substack. Search that up. I'm on Twitter and Instagram, @JohnMoe. Join our Preshies group on Facebook. Just go over to Facebook, search Preshies, and you can join our whole community of people—talking about the show, talking about mental health, talking about their own experience, sharing some really funny memes. It's a good place to hang out. We'd love to have you over there. Please use our electric mail address, DepreshMode@MaximumFun.org, to get in touch with us.

Hi, credits listeners. I wish there was a way that you could tell if a peach was ripe without just having to bite into it and get disappointed by the chalky chunkiness of an unripe peach.

Depresh Mode is made possible by your contributions. Our production team includes Raghu Manavalan, Kevin Ferguson, and me. We get booking help from Mara Davis. Rhett Miller wrote and performed our theme song, “Building Wings”. *Depresh Mode* is a production of Maximum Fun and Poputchik. I'm John Moe. Bye now.

Music: “Building Wings” by Rhett Miller.

I’m always falling off of cliffs, now

Building wings on the way down

I am figuring things out

Building wings, building wings, building wings

No one knows the reason

Maybe there’s no reason

I just keep believing

No one knows the answer

Maybe there’s no answer

I just keep on dancing

Jerri: This is Jerri from St. Paul, Minnesota. My message is be kind in your mind, especially when you're feeling down.

(Music fades out.)

Transition: Cheerful ukulele chord.

Speaker 1: Maximum Fun.

Speaker 2: A worker-owned network.

Speaker 3: Of artist owned shows.

Speaker 4: Supported—

Speaker 5: —directly—

Speaker 6: —by you!