

## Dr. Anna Lembke: Understanding & Treating Addiction | Huberman Lab Podcast #33

This episode I interview Dr. Anna Lembke, MD, Chief of the Stanford Addiction Medicine Dual Diagnosis Clinic at Stanford University School of Medicine. Dr. Lembke is a psychiatrist expert in treating addictions of all kinds: drugs, alcohol, food, sex, video games, gambling, food, medication, etc. Dr. Lembke is also an expert in the opioid crisis, and the author of *Dopamine Nation: Finding Balance in the Age of Indulgence* (<https://amzn.to/3AHHGBp>).

We discuss the biology and psychology of why people become addicted to certain substances and behaviors and the key role that our "dopamine balance" plays in creating addiction. We also discuss the science and practice of how to conquer addictions, why people relapse and how to avoid relapsing. Dr. Lembke also shares her expertise on topics closely related to addiction such as community, shame and lying and she explains why telling the truth—even about the most basic things in daily life, adjusts dopamine levels in our brain.

This episode is an important one for anyone struggling with addictions of any kind, for their friends and families and for health care professionals. It is also for anyone who has defeated addiction and is determined to stay clean. Last but not least, it helps explain why all humans do what we do, and how we can all maintain a healthy sense of pleasure seeking in life.

#HubermanLab #Addiction #Dopamine

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Dr. Anna Lembke Links:

Website: <https://bit.ly/3iPtGje>

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Timestamps:

00:00:00 Dr. Anna Lembke, Addiction Expert

00:02:25 Disclaimer & Sponsors: Roka, InsideTracker, Headspace

00:07:00 Dopamine, Happiness & Impulsivity

00:15:56 What Is Pleasure?

00:18:20 Addiction, Boredom & Passion for Life

00:24:00 Pain-Pleasure Balance Controls Addiction

00:29:10 Dopamine Deficits, Anhedonia

00:30:47 Are All Addictions the Same?

00:35:38 Boredom & Anxiety Lead to Creativity

00:40:35 Finding Your Passion Starts with Boredom & Action Steps

00:50:05 How to Break an Addiction

00:55:25 Relapse, Craving & Triggers

01:07:40 Can People Get Addicted To "Sobriety"?

01:11:45 Are We All Wired for Addiction?

01:15:57 Bizarre Addiction

01:18:14 Recovered Addicts Are Heroes

01:20:10 Lying, Truth Telling, Guilt & Shame

01:30:40 Clinical Applications of: Ibogaine, Ayahuasca, Psilocybin & MDMA

01:40:20 Social Media Addiction

01:51:25 Narcissism

01:53:30 Goal Seeking, Success & Surprise

01:58:10 Reciprocity

02:01:15 Closing Comments, Resources

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- Welcome to the Huberman Lab podcast, where we discuss science and science-based tools for everyday life. I'm Andrew Huberman, and I'm a professor of neurobiology and ophthalmology at Stanford School of Medicine. Today I have the pleasure of introducing Dr. Anna Lembke. Dr. Lembke is a psychiatrist and the chief of the Addiction Medicine Dual Diagnosis Clinic at Stanford University School of Medicine. She's a psychiatrist who treats patients struggling with addiction. She has successfully treated patients dealing with drug addiction, alcohol addiction, and behavioral addictions, such as gambling and sex addiction, as well as other types of addiction. In fact, during our discussion, I learned that there are a huge range of behaviors and substances to which people can become addicted to, and that there is a common biological underpinning of all those addictions. I also learned that there is a common path to the treatment and recovery from essentially all addictions. Dr. Lembke explained that to me and explained how to think about and conceptualize our own addictions, as well as the addictions of other people who are struggling to get treatment, move through treatment, and stay sober from their addictions. In addition to treating patients, Dr. Lembke is an author and was featured in the 2020 Netflix documentary, "The Social Dilemma". I'm excited to tell you that she has a new book coming out called "Dopamine Nation, Finding Balance in the Age of Indulgence". The book comes out August 24th and is an absolutely fascinating read into addiction and ways to treat various types of addiction. I've read the book cover to cover, and all I'll tell you is that at the very first chapter and throughout, you are going to be

absolutely blown away. The stories about her patients are extremely engaging. It brings forward the real struggle of addiction and the incredible, I think it's fair to say heroic battles, that people fight in order to get through addictions of various kinds. And all of that is woven through with story, with science, in ways that make it very accessible to anyone, whether or not you have a science background or not. I can't recommend it highly enough. So again, the book is "Dopamine Nation, Finding Balance in the Age of Indulgence", it comes out August 24th of this year, 2021.

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And you can pre-order that book by going to Amazon. We will provide a link to that in the show caption. Before we begin, I just want to mention that this podcast is separate from my teaching and research roles at Stanford. It is however part of my desire and effort to bring zero cost to consumer information about science and science-related tools to the general public. In keeping with that theme, I'd like to thank the sponsors of today's podcast. Our first sponsor is ROKA. ROKA make sunglasses and eyeglasses that are of the absolute utmost quality. Founded by two All-American swimmers from Stanford, everything about the sunglasses and eye glasses that ROKA makes was designed with performance in mind. First of all, they're very lightweight. You don't even really notice that they're on your face. Second of all, even if you get sweaty, they don't slip off. In fact, they were designed to be worn at work or around the house, but also if you're running or biking. So you can move seamlessly between different activities without having to change your sunglasses or eyeglasses. In addition, the lenses are designed with the science of the visual system in mind. I've spent my career working on the science of the visual system, and I can tell you that it's not trivial to build a lens that allows you to see with perfect clarity, whether or not you're in bright sunshine and then move into shadows. But the ROKA glasses allow you to do that. You always see things with absolute clarity. Another terrific thing about ROKA eyeglasses and sunglasses is the aesthetic. A lot of so-called performance sunglasses and eyeglasses, they're not really built with the best aesthetic and they kind of make people look like cyborgs. With ROKA, they have a lot of different styles to choose from, but all those styles are the sort that you could wear out to dinner or to work, or when engaging in physical activity. If you'd like to try ROKA glasses you can go to ROKA, that's R-O-K-A dot com, and enter the code Huberman at checkout. And if you do that, you'll get 20% off your first order. Today's

podcast is also brought to us by InsideTracker. InsideTracker is a personalized nutrition platform that analyzes data from your blood and DNA to help you better understand your body and reach your health goals. I'm a big believer in getting regular blood work done. And I've been doing that for a number of years, for the simple reason that most, if not all of the factors, that impact your immediate and long-term health, can only be analyzed in detail with a quality blood test. And now with the advent of modern DNA tests, you can get further insight into what's going on beneath the hood, so to speak. The problem with a lot of blood and DNA tests, however, is you get numbers back, you get the levels back of various things and you find out if certain things are too high or too low or right on target, but there are no directives about how to move those numbers in the direction that you would want them to go. With InsideTracker, they have a dashboard that makes all of that very easy, and that dashboard takes your numbers and can help direct you towards particular lifestyle factors, nutrition factors, exercise, supplementation, et cetera, that can help you bring those numbers into the ranges that are right for you. If you'd like to try InsideTracker you can go to [insidetracker.com/huberman](https://insidetracker.com/huberman). And if you do that, you'll get 25% off any of InsideTracker's plans. Just use the code Huberman at checkout. Today's episode is also brought to us by Headspace. Headspace is a meditation app that's backed by 25 published peer review studies and has over 600,000 5-star reviews. I've been meditating for a very long time. I'm 45-years-old now, almost 46, and I started meditating when I was about 15-years-old. The problem, however, is keeping up a meditation practice. I've experienced this myself. I've had periods of time where I'm meditating regularly and then periods of time where I just kind of fall off the rails and I'm just not doing it at all. There's now tons of evidence, evidence from neuroscience, evidence from psychology, evidence from areas of biology focused on stress and the immune system, that a meditation practice, when done regularly, is extremely beneficial for mental and physical health, and things like focus and creativity. However, you have to do the meditation practice, and so if you're not doing it regularly, that's a serious problem. And if you are doing it regularly, great. With Headspace, I find that I can stick to a meditation practice very easily. In fact, that's why I started using it and that's why I continue to use it. I try and get a meditation practice in every day, but sometimes that requires that it be a brief meditation practice. With Headspace, they have a huge range of different meditations of different durations, and so that's really helpful in building and maintaining these powerful meditation practices. If you want to try Headspace you can go to [headspace.com/specialoffer](https://headspace.com/specialoffer). And if you do that, you'll get a free one month trial

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00:07:00 Dopamine, Happiness & Impulsivity

go to [headspace.com/specialoffer](https://headspace.com/specialoffer). And now for my discussion with Dr. Anna Lembke. All right, great to have you here. - Thank you for having me, I'm excited to be here. - Yeah, I have a lot of questions for you. I, and many listeners of this podcast, are obsessed with dopamine, and what is dopamine, how does it work? We all hear that dopamine is this molecule associated with pleasure. I think the term dopamine hits, like I'm getting a dopamine hit from this, from Instagram, or from likes or from praise or from whatever, is now commonly heard. What is dopamine, and what are maybe some things about dopamine that most people don't know? And probably that I don't know either. - So dopamine is a neurotransmitter, and neurotransmitters are those molecules that bridge the gap between two neurons. So they essentially allow one neuron, the pre-synaptic neuron, to communicate with the post-synaptic neuron. Dopamine is intimately associated with the experience of reward, but also with movement, which I think is really interesting, because movement and reward are linked, right? If you think about, you know, early humans, you had to move in order to go seek out the water or the meat or whatever it was. And even in the most primitive organisms, dopamine is released when food is sensed in the environment. For example, *C. elegans*, a very primitive worm. So dopamine is this really powerful, important molecule in the brain that helps us experience pleasure. It's not the only neurotransmitter involved in pleasure, but it's a really, really important one. And if you want to think about something that most people don't know about dopamine, which I think is really interesting, is that we are always releasing dopamine at a kind of tonic baseline rate. And it's really the deviation from that baseline, rather than like hits of dopamine in a vacuum, that make a difference. So when we experience pleasure, our dopamine release goes above baseline, and likewise dopamine can go below that tonic baseline, and then we experience a kind of pain. - Interesting. So is it fair to say that one's baseline levels of dopamine, how frequently we are releasing dopamine, in the absence of some, I don't know, drug or food or experience, just sitting, being, is that associated with how happy somebody is, their kind of baseline of happiness or level of depression? - There is evidence that shows that

people who are depressed may indeed have lower tonic levels of dopamine. So that's a really reasonable thought, and there is some evidence to suggest that that may be true. The other thing that we know, and this is really kind of what the book is about, is that if we expose ourselves chronically to substances or behaviors that repeatedly release large amounts of dopamine in our brains reward pathway, that we can change our tonic baseline and actually lower it over time, as our brain tries to compensate for all of that dopamine, which is more really than we were designed to experience. - Interesting and is, is it the case that our baseline levels of dopamine are set by our genetics, by our heredity? - Well I think, you know, if you think about sort of, you know, the early stages of development and infancy, certainly that is true. You're kind of, you know, born with probably whatever is your baseline level. But obviously your experiences can have a huge impact on where your dopamine level ultimately settles out. - So if somebody's disposition is one of constant excitement and anticipation, or easily excited, I think about the kind of people where you say hey, do you want to check out this new place for tacos, and they're like "Yeah, that'd be great!" And other people are a little more cynical, harder to budge. Like my bulldog Costello. Very, very stable, low levels of dopamine with big inflections in his case. Do you think that's set in terms of our parents, and obviously nature and nurture interact, but is that, is dopamine at the core of our temperament? - I don't really think we know the answer to that, but I will say that people are definitely born with different temperaments, and those temperaments do affect their ability to experience joy. And, you know, we've known that for a long time, and we describe that in many different ways. One of the ways that we describe that in the modern era is to use psychiatric nomenclature. Like this person has a dysthymic temperament, or, you know, this person has chronic major depressive disorder. In terms of looking specifically at who's vulnerable to addiction, that's an interesting sort of mixed bag because when you look at the research on risk factors for addiction, so what kind of temperament of a person makes them more vulnerable to addiction, you see some interesting findings. First you see that people who are more impulsive are more vulnerable to addiction. So what is impulsivity? That means having difficulty putting space between the thought or desire to do something, and actually doing it. And people who have difficulty putting a space there, who have a thought to do something and just do it impulsively, are people who are more vulnerable to addiction. - Interesting. Could I, in terms of impulsivity, is this something that relates literally to the startle reflex? Like I, for instance, as a lab director, I'm familiar with walking around my lab and when I decide, deciding I'm going to talk to

my people, of course when they knock on my door it's always like wait, why am I being bothered right now? Even though I love to talk to them. But I walk around my lab from time to time, and some people I notice, I'll say, do you have a moment, and they'll slowly turn around and say, yeah, or no, in some cases. And other people will jump the moment I say their name. They actually have a, a kind of a heightened startle reflex. Is that related to impulsivity, or is what you're referring to an attempt to withhold behavior that's very deliberate, under very deliberate conditions? - Yeah, so I don't think that that startle reflex is necessarily related to impulsivity. That can be related to anxiety. So people who are high anxiety people will tend to have more of a startle reflex. Impulsivity is a little bit different. And by the way, impulsivity is not always bad, right. Impulsivity is that thing where there's not a lot of self-editing or worrying about future consequences. You know, you have the idea to do something and you do it. And of course we can imagine many scenarios where that's absolutely wonderful. You know, there can be a sort of, let's say intimate interactions between people, where you wouldn't really want to be super inhibited about it, right. You would want to be disinhibited and impulsive. I can also like imagine like sort of fight or flight scenarios, like battle scenarios, right, where it would really be good to be impulsive and just go rhino! - Where hesitation can cost you your life? - Right, yes, that's right, that's right. But, you know, and I think this brings up a really, something that I've come to believe after 25 years of practicing psychiatry, is that what we now conceptualize in our current ecosystem as mental illness, are actually traits that in another ecosystem might be very advantageous. They're just not advantageous right now, because of the world that we live in. And I think, you know, impulsivity is potentially one of those, right? 'Cause we live in this world that's sort of like, you have to constantly be thinking sort of rationally about the consequences of X, Y, or Z. And it's such a sensory rich environment, right, that we're being bombarded with all of these opportunities, these sensory opportunities. And we have to constantly check ourselves. And so impulsivity is something that right now can be a difficult trait, but isn't in and of itself a bad thing. - I see. And it's, I'm beginning to realize it's a fine line

00:15:56 What Is Pleasure?

between spontaneity and impulsivity. - Yeah. - What is pleasure and how does it work, at the biological level, and if it feels right, at the psychological level? And if you don't mind painting a picture of sort of the range of things that you have observed in your clinic, or



in life, that people can become addicted to. But just to start off really simply, what is this thing that we call pleasure? - Well, I think it's actually really hard to define pleasure in any kind of succinct way, because certainly there is the seeking out of a high, or a euphoria, or I think, you know, the kind of experience that almost anybody would associate with the word pleasure. But also the seeking out of those same substances and behaviors is often a way to escape pain. So for example, when I talk to people with addiction, sometimes their initial foray into using a drug is to get pleasure, but very often it's a way to escape their suffering, whatever their suffering may be. And certainly as people become addicted, even those who initially were seeking out pleasure are ultimately just trying to avoid the pain of withdrawal or the pain of the consequences of their drug use. So I think it's, you know, very hard to actually, you know, define it as this unitary thing. And it's certainly not just getting a high. There are so many ways in which people sort of want to escape, which is not the same thing as sort of this hedonic, you know, wanting to feel pleasure. - So someone could decide that they want to go out and dance, or get up and dance, because of the pleasure of dancing. I can imagine that. But, and maybe it's very difficult for them to stay seated when a particular song comes on, for instance. But seeking what we would call pleasure in order to eliminate pain, that evokes a different picture in my mind. That evokes a picture of somebody that feels lost or depressed or underwhelmed.

00:18:20 Addiction, Boredom & Passion for Life

I definitely want to get into the precise and general description of addiction and what that is, but in a previous conversation we had, you said something that really rung in my mind, which is that many people who become addicted to things, let's call them addicts, have this feeling that normal life isn't interesting enough. That they are seeking a super normal experience, and that the day-to-day routine balance, which is actually in the title of your book, "Dopamine Nation, Finding Balance in the Age of Indulgence", that the word balance itself can sometimes be a bit of an adverse term for people. And I'm struck by this idea, and the reason I want to explore it is because so much of what I see online is about generating a lack of balance, about being tilted forward at all times, really leaning into life hard, experiencing life, you know, living a full life. Even the commencement speech given by Steve Jobs on this campus was really about finding passion, digging. You know, that's so much in the narrative now. So maybe you could

just tell us a little bit about your experience with this association, if it really exists, between people's sense of the normalcy, or maybe even how boring life can be, and their tendency to become addicts of some sort. - Yeah, well, I mean, I think that life for humans has always been hard, but I think that now it's harder in unprecedented ways. And I think that the way that life is really hard now is that it actually is really boring. And the reason that it's boring is because all of our survival needs are met, right? I mean, we don't even have to leave our homes to meet every single physical need, you know, as long as you're of a certain level of financial wellbeing, which frankly, you know, we talk so much about, you know, the income gap, and certainly there is this enormous gap between rich and poor. But that gap is smaller than it's ever been in like the history of humans. Even the poorest of the poor have more excess income to spend on leisure goods, than they ever have before in human history. If you look at leisure time, for example, so people without a high school education have 42% more leisure time than people with a college degree. So my point here is that life is hard now in this really weird way, in that we don't really have anything that we have to do. So we're all forced to make stuff up, you know, whether it's being a scientist or being a doctor, or being an Olympic athlete, or, you know, climbing Mount Everest. And people really vary in their need for friction. And some people need a lot more than others. And if they don't have it, they're really, really unhappy. And I do think that a lot of the people that I see with addiction and other forms of mental illness are people who need more friction. Like they're unhappy, not necessarily because there's something wrong with their brain, but because their brain is not suited to this world. - And do you think they have that sense, my brain isn't suited to this world, or they simply feel a restlessness and they're constantly seeking stimulation? - I think that's right, yeah. I think it's not really knowing what's wrong with me, and why am I unhappy, how can I be happier? And of course, as you talk about, what's so pervasive in our narrative now is like find your passion, you know, find your, you know, out of whatever it is, to save the world. And in a way that's good because it has people out in the world and seeking. But in a way it can also be misleading in the sense that I think people aren't entirely aware that the world is a hard place, and that life is hard, and that, you know, like we're all kind of making it up. Do you know what I mean? - Yeah. Well there's a book by Cal Newport, I don't know if you know Cal Newport's work, but you guys are very symbiotic in your messages. He's a professor of computer science at Georgetown. Yes, at Georgetown. And wrote a book some years ago, really ahead of its time, called "So Good They Can't Ignore You", which is about not

meditating or doing much work to try and figure out what one's passion is by thinking, but rather go out and acquire skills, - Right. - and develop a sense of passion for something by your experience of hard work and getting better end feedback. - Right. - A little bit of the growth mindset, think of our colleague Carol Dweck. But he's gone on to write books, "Deep Work", which is all about removing yourself from technology and doing deep work. - Yes, right. - And he's been a big proponent of the evils of context switching too often throughout the day. - [Anna] Yeah. - For sake of productivity, mostly. His new book is called "A World Without Email." I'm beginning to realize, as I cite off these books and your book, "Dopamine Nation, Finding Balance in the Age of Indulgence", that maybe the reason why you two don't know about one another is because neither of you are on social media. - That's it. - Right. - That's it. - And yet you're two of the most productive people that I know, including productive authors.

00:24:00 Pain-Pleasure Balance Controls Addiction

So that's a discussion unto itself. But I find this fascinating. So let's talk about the pleasure pain balance and addiction. And I've heard you use this seesaw or balance scale, - Right. - analogy before. And I think it's a wonderful one that really, for me, clarified what addiction is, at least at the mechanistic level. - Yeah, so to me, one of the most significant findings in neuroscience in the last 75 years is that pleasure and pain are co-located, which means the same parts of the brain that process pleasure also process pain. And they work like a balance. So when we feel pleasure, our balance tips one way, when we feel pain, it tips in the opposite direction. And one of the overriding rules governing this balance is that it wants to stay level. So it doesn't want to remain tipped very long to pleasure or to pain. And with any deviation from neutrality, the brain will work very hard to restore a level balance, or what scientists call homeostasis. And the way the brain does that is with any stimulus to one side, there will be a tip in equal and opposite amount to the other side. - It's like the principle laws of physics. - Yes, right, right. So like, I like to watch YouTube videos. When I watch YouTube videos of "American Idol", you know, it tips to the side of pleasure. And then when I stop watching it, I have a comedown, right, which is a tip to the equal and opposite amount on the other side. And that's that moment of wanting to watch one more YouTube video, right. - Yeah, and I just want to interject there. So this moment of wanting to watch another, that is associated with pain, I think, is, are we always aware of that happening? Because you

just described it in a very conscious way. - Right. - But when I indulge in something I enjoy, I'm usually thinking about just wanting - Yes, yes. - more of that thing. I don't think about the pain, - Yes. - I just think about more. - Right. So really excellent point because we're mostly not aware of it. And it's also reflexive. So it's not something that consciously happens, or that we're aware of, unless we really begin to pay attention. And when we begin to pay attention, we really can become very aware of it in the moment. Again, it's like a falling away. You're on social media and, you know, you get a good tweet of something, and then you can't stop yourself because there's this awareness, a latent awareness, that as soon as I disengage from this behavior, I'm going to experience a kind of a pain, right. A falling away, a missing that feeling, a wanting more of it. And of course, one way to combat that is to do it more, right, and more, and more, and more. So I think that is really what I want people to tune into and get an awareness around. Because once you tune into it, you can see it a lot. And then when you begin to see it, you have an, if you keep the model of the balance in mind, I think it gives people kind of a way to imagine what they're experiencing on a neuro-biological level, and understand it. And in that understanding, get some mastery over it, which is really what this is all about. Because ultimately we do need to disengage, right? We can't live in that space all the time, right. We have other things we need to do. And there are also serious consequences that come with trying to repeat and continue that experience or that feeling. - Yeah, so if I understand this correctly, when we find something, or when something finds us, that we enjoy, that feels pleasurable, social media, food, sex, gambling, whatever it happens to be, and we will explore the full range of these, there's some dopamine release when we engage in that behavior. And then what you're telling me is that very quickly, - [Anna] Yes. - and beneath my conscious awareness, there's a tilting back of the scale where pleasure is reduced, by way of increasing pain. - Right. - And I've heard you say before that the pain mechanism has some competitive advantages over the pleasure mechanisms, such that it doesn't just bring the scale back to level. It actually brings pain higher than pleasure. Could you tell us a little bit more about that? - Yeah, yeah. So what happens, again, so the hallmark of any addictive substance or behavior is that it releases a lot of dopamine in our brains reward pathway. Like, right, like broccoli just doesn't release a lot of dopamine, just doesn't, right. - I'm trying to imagine, I was about to say, maybe you, and I stopped myself because. Broccoli's good, it can be really good, but broccoli is never amazing. - Right. Broccoli's never amazing. - We're never like, - I mean- - this is the most amazing broccoli. -

Honestly we can probably find somebody on the planet for whom broccoli is amazing. And of course if I'm starving, broccoli is amazing. - Rich Roll. Rich Roll is big on plants, and he has a good relationship to plants.

00:29:10 Dopamine Deficits, Anhedonia

Rich, tell us how to make broccoli amazing. If anyone could do it it'd be Rich. - Yeah, yeah. But what happens right after I do something that is really pleasurable and releases a lot of dopamine, is again, my brain is going to immediately compensate by down-regulating my own dopamine receptors, my own dopamine transmission, to compensate for that, okay. And that's that come down, or the hangover, that after-effect, that moment of wanting to do it more. Now, if I just wait for that feeling to pass, then my dopamine will re-regulate itself and I'll go back to whatever my chronic baseline is. But if I don't wait, and here's really the key, if I keep indulging again and again and again, ultimately I have so much on the pain side, right, that I've essentially reset my brain to what we call like an anhedonic, or lacking in joy type of state, which is a dopamine-deficit state. So that's really the way in which pain can become the main driver, is because I've indulged so much in these high reward behaviors or substances, that my brain has had to compensate by way down-regulating my own dopamine, such that even when I'm not doing that drug, I'm in a dopamine deficit state, which is akin to a clinical depression. I have anxiety, irritability, insomnia, dysphoria. And a lot of mental preoccupation with using again, or getting the drug. And so that's the piece there, there's the single use, which easily passes, but it's the chronic use that can then reset really our dopamine thresholds, and then nothing is enjoyable, right?

00:30:47 Are All Addictions the Same?

Then everything sort of pales in comparison to this one drug that I want to keep doing. - And that one drug could be a person, right? I mean, I - Yes. - I know people in my life that are still talking about this one relationship, this one person that was just so great, despite all the challenges of that thing. It's almost like they're addicted to the narrative. - Yeah. - They were maybe, or still are, addicted to the person. So it could be to any number of things, video games, sex, gambling, a person, a narrative. To me, and because of the way you describe this mechanism, this pleasure pain balance, that all

speaks to the kind of generalizability of our brain circuitry. And this is something that fascinates me, and I know it fascinates you as well, which is that nature did not evolve 20 different mechanisms for 20 different types of addiction. Just like anxiety is a couple of core sets of hormones and neurotransmitters and pathways, and one person is triggered by social interactions, another person is triggered by spiders. But the underlying response is identical. It sounds like with addiction as well, there may be some nuance, but that there's sort of a core set of processes. So it doesn't really matter if it's gambling or video games or sex or a narrative about a previous lover or partner, whatever. It's the same addictive process underneath that. Is that correct? - Yes, exactly. And that's where this whole idea of cross-addiction comes in. So once you've been addicted to a substance, severely addicted, that makes you more vulnerable to addiction to any substance. - And when you say substance, does the same, is what you just said also true for behaviors? - Yes, so, when I use the word drug I'm talking about substances and behaviors really. I'm talking about behaviors like gambling, sex, you know, - Porn. - gaming, porn, absolutely, shopping. - Work. - Work. - You've accused me, I'll just, for the record, Anna, Dr. Lembke's accused me, not accused me, has diagnosed me outside the clinic, in a playful way, of being work-addicted. You're probably right. The first thoughts I have when I wake up are typically about work. Certainly within 50 milliseconds or so of waking. And probably the last thoughts I have, I would hope are not about work, but yeah, I work constantly. I do other things, but I have to actively turn that off. - Yes. That's exactly right. And you're certainly not alone in that. And of course- - At Stanford, no, no no no. - And we're here in Silicon Valley, right, it's highly rewarded, right. So that kind of addiction. - It's embedded in the culture. - Oh yeah, absolutely. - Absolutely, yeah, yeah. And there's this other city, I think it's called New York, where they also work a lot I hear, and it's heavily rewarded. I once said, and I'm sure that I'm not the first person to say it, but I was thinking about addiction, and I was thinking about the underlying circuits and I posted something to social media which said that addiction is a progressive narrowing of the things that bring you pleasure. That was the way that I kind of crystallized the literature in my mind. And then we met and you of course came and gave these amazing lectures in the neuroanatomy course for the medical students, and the rest is history. But I tossed out a kind of mirroring statement for that as well, which was a bit overstepping, I admit, which I said, addiction is a progressive narrowing of the things that bring you pleasure. And I said, dare I say, enlightenment is a progressive expansion of the things that bring you pleasure. Not that

anybody knows what enlightenment is, but it was my attempt to take a little bit of a jab at the fact that nobody knows. And so why not, why wouldn't I throw a neurobiological explanation? Just to kind of sample the waters. And people had varying levels of response but I would've, the reason I bring that up is that I would imagine that being able to derive pleasure from many things would be a wonderful attribute. You know people like this, that can experience pleasure in little things and in big events. Not just, you know, the big milestones of life, but also the subtle, you know, as the, like the yogis would say, the subtle ripples of life. If such an ability exists, do you think that that reflects a healthily tuned dopamine system? One that can engage and enjoy, but then disengage. Is that what we should be seeking? And to underscore, I know nothing about enlightenment meditation, or any of it. I just, I use these as opportunities to explore. - Yeah, so it's a great question and I understand the question as, so what should we be striving for, right?

#### 00:35:38 Boredom & Anxiety Lead to Creativity

Where should we settle out? And, you know, in my book, I really hold out people in recovery from severe addiction as sort of modern day prophets for the rest of us, because I do think that people who have been addicted and then get into recovery, do have a hard won wisdom that we can all benefit from. And the wisdom, I guess, you know, to distill it down, I mean it's many things. But in terms of, you know, dopamine, the wisdom is there are adaptive ways to get your dopamine. And there are less than adaptive ways. And in general, you could describe the adaptive ways as not too potent. So not tipping that balance too hard or too fast to the side of pleasure. - So does that mean never allowing myself to be absolutely in complete bliss? Or does it mean not allowing myself to stay in that state too long? - The latter. I think the latter. Then that gets to temperament, so I'm going to get that to a second. So, in general, what we want is some kind of flexibility in that balance, and the ability to easily reassert homeostasis. We don't want to break our balance, which is possible if we overindulge for enough period of time and end up with a balance tipped to the side of pain, this dopamine deficit state we've been talking about. We want a flexible, resilient balance, right, which can be sensitive to things going on in the environment, which can experience pleasure and approach, which can experience pain and recoil, right? This is all adaptive and healthy and necessary and good. We would never want a balance that doesn't tilt. - Right. - That

would be a disaster, we wouldn't be human. And we wouldn't want that, it'd be really, really boring. On the other hand, what people in recovery from addiction talk about is, to some extent having to learn to live with things being a little boring a lot of the time, right? So trying to avoid some of this intensity and thrill-seeking and escapism, that really is at the core of addictive tendencies. - Sorry to interrupt, but when you say boring, can we add stressful and boring? - Yes. - Because there are days where I'm not, I'm one of these people that have to remind myself to have fun, - Yes. - because I sort of forgot what the term means, because I like to think that I experience a lot of pleasure in little things, but I'm a pretty hard-driving guy. I like goals and big milestones and all that stuff. Anyway. The point being that many days I'm not bored thinking oh, there's nothing to do, but I am kind of overwhelmed by the number of things that are really not pleasurable that I have to do. - Yeah, right. - I won't mention what they are, 'cause I don't my colleagues to be like that's why you don't respond to emails. No, just your email. Not yours Anna, but theirs. In any event, so anxiety and boredom can hang out together, right? Am I correct in? - Oh, for sure. I mean, actually boredom is highly anxiety-provoking. - Okay. That's good to know, 'cause I think people hear boredom and they think like, oh, there's nothing to do here. - [Anna] Right. - There's nothing. I feel like we have a ton to do, we just don't really want to do it. - Right, right. - As opposed to something that we're excited to do. - Right, okay, so this gets to sort of some of the core things. Also we were talking about earlier about finding your passion. So I'm going to try to link it all together. But basically boredom, first of all boredom is a rare experience for modern humans, because we're constantly distracting ourselves from the present moment, and we have an infinite number of ways to do that, right. But boredom is really, I think, an important and necessary experience. But it is scary because when you allow yourself to be bored, let's say you were, had that list of all the things you hate to do, but you actually got them all done. Imagine that. And you got your forthcoming book done, and you did all your interviews. - It could happen! Lightning could strike. - Right. And you walked your dog, and you cleaned your house, and you went shopping. Imagine that for a moment. You would be sitting in your house, and my guess is you would be terrified because, wow, what am I supposed to do now, right? There's nothing I really have to do. And that is really, really scary. That can feel like free fall. And yet that's really an important and good experience to have. And I think that is an experience out of which we can have a lot of creative initiative, but also really consider our priorities and values. Okay, here I am on planet Earth. What the he-haw am I going to do with my life? What do I really care



about? How do I really want to spend my time, when I'm not distracting myself, you know,

#### 00:40:35 Finding Your Passion Starts with Boredom & Action Steps

in order to spend it. And, you know, then this gets back to our conversation a little bit earlier about finding your passion. So I think that one of the big problems now that's very misguided about this idea of finding your passion, it's almost as if people are looking to fit the key into the lock of the thing that was meant for them to do. - Right, and then everything will feel like a natural progression? - Right, and then everything will be wonderful. - I can attest to the fact that is not how it works in any endeavor. - Yeah, right. And that you'll have all this great success or. And here's where I really think the answer lies. And I really, really believe this. Stop looking for your passion and instead look around right where you are. Stop distracting yourself, look around right where you are, and see what needs to be done. So not what do I want to do, but what is the work that needs to be done? And more importantly, it doesn't have to be some grandiose work. Like does the garbage need to be taken out, right? Is there some garbage on your neighbor's lawn that someone threw there, that you could actually bend over and pick up and put into the garbage can? Look around you. There is so much work that needs to be done that nobody wants to do. That is really, really important, and if we all did that, I really think the world would be a much better place. And this is what people who have severe addiction, who get into recovery, realize. They're like, it's not about me and my will and what I'm going to will in my life or in the world. It's about looking around what needs to be done. What is the work that I am called to do in this moment? Which also is incredibly freeing because I don't have to search for the perfect thing. There's a lot of burden now on young people, that they have to find that perfect thing, and until they've found that perfect thing, they're going to be miserable. You don't have to do that. Look at the life you were given, look at the people around you, look at the jobs that present themselves to you and do that job simply and honorably, one day at a time, with a kind of humility. I think this is really what's so striking to me about the wisdom of people in recovery. There's this incredible humility that comes out of that experience. You feel so broken, so ashamed, but you pick yourself up one day at a time and you build a life that's around what can I do right in this moment, that might benefit another person, and thereby benefit me? - Yeah it's a really important point, and if you're willing, I'd like to

actually stay on this issue of passion, because I think the dopamine systems, if I understand them correctly, the dopamine systems merge with this work that you're referring to, this immediacy of things calling to us, like taking out the trash, which sounds frankly really boring, to be honest. I hate taking out the trash, but I do it, 'cause I like a clean home and I like a home that smells good. Or at least doesn't smell bad. So we do these things, and not that we want to offer some larger carrot as a consequence of doing those things. But if I understand correctly, what you're saying is in the act of looking at one's immediate environment, acting on that immediate environment, we cultivate a relationship to these circuits in our brain about action and reward that, at least to my mind, span the range of small things being rewarding, and then lead us to the bigger things being rewarding. It's not like all we're going to do is take out trash and tend to house. We eventually will venture out, and we eventually will find careers and work on those. But if I understand correctly, you're talking about getting into a sort of functional or adaptive action step, and it's the action step that these days we tend to overlook because most of our mindset is in things that are truly outside of our immediate reality. Do I have that correct? - Yeah, that was beautifully said. And I would just add to that, I see a lot of young people who, for example, spend most of their waking hours playing video games, and they come to me and they say I am anxious and depressed. I'm majoring in computer science. I hate it, I thought I would like it. You know, if I could only find that thing that I was really meant to do, my life would be better. And my first intervention for the many many people like that that I see in clinical care is, you have it backwards. I don't say it quite like that. You were waiting for that thing to pull you out of the video game world. And you're never going to find it, as long as you're playing video games. 'Cause video games are so powerfully dopaminergic that you have this distorted sense of really pleasure and pain. And you will not be able to find that thing that you enjoy. And so of course the intervention is abstain from video games, reset your reward pathways, start with a level balance. And what invariably happens, and I've just seen it over 20 years so many times I've become really a believer in this, all of a sudden it's like oh wow, my computer science class is interesting this quarter. It's like okay, you know, you have a receptivity then to experiencing pleasure and reward in a way you just don't have when you're bombarding your reward pathways with these high dopamine drugs. - Very interesting. And just to underscore this notion that tending to the immediate things can lead to super performance. I may have mentioned it earlier this episode, but if I didn't I'll mention it now, which is I have the great privilege of having some close friends

that were in the SEAL teams and doing some work with those communities. And it's a remarkable community for reasons that I think most people don't understand. People think, they see the images, carrying logs down the beach, and all this, blowing stuff up, all the stuff that's fun for guys like that. But all of the guys I know who were in the SEAL teams have this sense of duty about immediate things, and not just holding the door and doing, helping with the dishes and moving things around. They are constantly scanning their environment for what can be done. - Ah! - They essentially conquer every environment they're in. They are also some of the most competitive human beings in the world, and they do it, unless they're in the act of war fighting, which is their real job. They do it in every environment, in a very benevolent way. And it's a remarkable thing because it, I think it's what is part of what they're selected for. And, you know, there's a range there. But I think when we hear about tending to the immediate things, or this phrase, you know, how you do one thing is how you do anything. That's a tricky one for me, because there are certain things I just don't do well. But should we always be trying? I think that the tending to, setting the horizon in closely and tending to things in one's immediate environment, I think is very powerful and translates, - Yes. - because again, I think the nervous system, it performs algorithms. It has action steps. The brain doesn't evolve to do one thing, it evolves to be able to use the same approach to doing lots of different things. - Yes. I just want to add, so even beyond that, 'cause that totally resonates for me, and is very consistent with people in recovery from addiction who learn to take it one day at a time, which is one of the, you know, standard lingo from Alcoholics Anonymous and other 12-step groups. But I think also, as you say, you know, our brain is really wired for the 24-hour period. We're not very good at sort of the, you know, 10 year, 20. I mean we have this huge frontal lobes and yes, we're great planners and we can, but if we live too much in that space, we can really get very anxious and depressed and lost, and either catastrophize or get grandiose. But if you can chunk it down to a day, what people in recovery talk about is how, if I can just do today right, then I will get a chain of days that seem insignificant in their individual units, but after six months or a year or two years of those good days, I've got two very good years, right, and I look back and it's like oh wow, I guess I did all that. But I think that's really, you know, one of the keys, is really taking it one day at a time, which your SEALs, and also this connecting with the environment, right? So being awake and alert to your environment, and connecting with your environment, not trying to escape it. And of course escapism is what we all want and desire, that experience of non being. And we

get it from the internet or from drugs or whatever it is, but it's the booby prize. Because ultimately it takes you further and further away from your immediate environment, which is where we really have to connect to get that sense of grounded-ness and authenticity, and like of being in our own lives. - Well I think the unit of the day is something that comes up again and again, in my discussions with colleagues who are extremely successful, and who also have balanced lives. - Right. - This actually came up in the discussion with Karl Deisseroth, who is also a successful scientist and clinician and, you know, manages a family, et cetera. So the unit of the day, I think, is fundamental.

#### 00:50:05 How to Break an Addiction

And those stack up, as you mentioned. So along those lines, I've heard you say that in order to reset the dopamine system, essentially in order to break an addictive pattern, to become un-addicted, 30 days of zero interaction with that substance, that person, et cetera. - Right. - Is that correct? - Yeah, and 30 days is, in my clinical experience, the average amount of time it takes for the brain to reset reward pathways for dopamine transmission to regenerate itself. There's also a little bit of science that suggests that that's true. Some imaging studies showing that our brains are still in a dopamine-deficit state two weeks after we've been using our drug. And then a study by Schukit and Brown which took a group of depressed men who also were addicted to alcohol, put them in a hospital where they, they received no treatment for depression but they had no access to alcohol in that time. And after four weeks, 80% of them no longer met criteria for major depression. So again, this idea that by depriving ourselves of this high dopamine high reward substance or behavior, we allow our brains to regenerate its own dopamine, for the balance to really equilibrate. And then we're in a place where we can sort of enjoy other things. - So that progressive narrowing - Right. - of what brings one pleasure, eventually expands. So I'd like to dissect out that 30 days a little more finely. And I also want to address how does one stop doing something for 30 days, if the thing is a thought? So we'll kind of, I'll put that on the shelf for the moment. So days one through 10, I would imagine will be very uncomfortable. - [Anna] Yes. - They're going to suck basically, to be quite honest, because the way you described this pleasure pain balance, to my mind says that if you remove what little pleasure one is getting, or a lot of pleasure from engaging in some behavior, that's gone. The pain system is really ramped up. And nothing is making me feel good. I'll just use myself as an example. I'm not in

recovery but, you know, that 10 days is going to be miserable. Anxiety, trouble sleeping, physical agitation. - Yes. - To the point where, you know, maybe impulsive, angry. Should one expect all of that? Should the family members of people expect all of that? - Yeah. So what I say to patients, and it's a really important piece of this intervention, is that you will feel worse before you feel better. - For how long, is probably the first question they ask, right? - Yes. And I say usually, in my clinical experience, you'll feel worse for two weeks, but if you can make it through those first two weeks, the sun will start to come out in week three. And by week four, most people are feeling a whole lot better than they were before they stopped using their substance. So yeah, you have to, it's a hard thing. Like you have to sign up for it. And I will say, obviously there are people with addictions that are so severe that as long as they have access to their drug or behavior, they're not able to stop themselves. And that's why we have, you know, higher levels of care, - Sure. - residential treatment. So this is not going to be for everybody, this intervention, but it's amazing how many people with really severe addictions to things like heroin, cocaine, you know, very severe pornography addictions. I posit this, I do it as an experiment. I said you know what, let's try this experiment. I'm always amazed, number one, how many of them are willing. And number two, how many of them are actually able to do it. They are able to do it. And so that little nudge is sort of just what they need, And the carrot is, you know, there's a better life out there for you and you'll be able to taste it in a month. You really will be able to begin to see that you can feel better, and that there's another way. - So the way you describe it seems like it's hard, but it's doable for most people, not everybody. - Yeah, right. - And we'll return to that category of people who can't do that on their own. Well, then days 21 through 30, people are feeling better. The sun is starting to come out, as you mentioned, which translates in the narrative we've created here, and supported by biology, that dopamine is starting to be released in response to the taste of a really good cup of coffee, - Yes, exactly. - for instance. Whereas before it was only to insert, you know, addictive behavior. - Right, that's right. - Whichever it happens to be. - Of course, coffee can be addictive too, but we'll leave that aside. - Sure, yeah. I feel like coffee has a kind of consumption limiting mechanism built-in, where at some point you just can't ingest anymore. - Yeah. - But maybe that's wrong. Sorry to give lift to the caffeine addicts out there. As I clutch my mug. So days 21 through 30. I've seen a lot of people go through addiction and addiction treatment. I've spent a lot of time in those places, actually, looking at it, researching. I've got friends in that community.

00:55:25 Relapse, Craving & Triggers

I'm close with that community. One thing I've seen over and over again, sadly often in the same individuals, is they get sober from whatever, they're doing great. These are people with families. These are people that you discard your normal image of an addict and insert the most normal, typical, whatever, healthy person you can imagine. 'Cause a lot of these people you wouldn't know were addicts. And then all of a sudden you get this call, so-and-so's back in jail. So-and-so's wife is going to leave him because he drank two bottles of wine and took a Xanax at 7:00 a.m., crashed his truck into a pole, has got two beautiful kids. Like how did this happen again? To the point where by the fourth and fifth time, people are just done. I mean maybe people, you might be able to detect the frustration in my voice. I'm dealing with this, with somebody that's like, I don't even know that I want to help this time. It's been so many times, to the point where I'm starting to wonder is this person just an addict. This is just kind of what they do and who they are. And you never want to give up on people but, and I'm hanging in there for them. But I will say that many people have given up on them. And so what I'd like to talk about in this context is what sorts of things help other people that we know that are addicted? What really helps? Not what could help, but what really helps. And are there certain people for whom it's hopeless? I mean, I don't like to hold the conversation that way, but I wouldn't be close to the real life data if I didn't ask. Is it hopeless, are there people who just will not be able to quit their substance use or their addictive behavior, despite, I have to assume, really wanting to? - Yeah, so there are people who will die of their disease of addiction, you know, and I think conceptualizing it as a disease is a helpful frame. There are other frames that we could use, but I do think, given the brain physiologic changes that occur with sustained heavy drug use, and what we know happens to the brain, it is really reasonable to think of it as a brain disease. And for me, the real window of, let's say being able to access my compassion around people who are repeat relapsers, even when their life is so much better when they're in recovery. - Oh yeah, yeah. - It's like a no-brainer, right? Is to conceptualize this balance and the dopamine deficit state, and a balance tilted to the side of pain. And to imagine that for some people, after a month or six months, or maybe even six years, their balance is still tipped to the side of pain. That on some level that balance has lost its resilience and its ability to restore homeostasis. - It's almost like the hinge on that balance - Yes. - is messed up. - Exactly. And so, I

mean, for someone who's never experienced addiction, like yourself, maybe one way to conceptualize it is. - Well I didn't say that. - [Anna] Oh okay. - To be clear, I was not referring to myself, but I, in this example I was giving, if I were, I would come clean. I would reveal that. But I think that, especially after hearing some of your lectures and descriptions of the range of things that are addictive, I think I've been fortunate I don't have a propensity for drugs or alcohol. - Right, okay. - I'm lucky in that way. - Right, right. - Frankly, if they remove all the alcohol from the planet, I'll just be relieved because no one will offer it to me any more. - [Anna] Right, right. - So don't send me any alcohol. It won't go to me. - [Anna] Right. - But I don't have that, I like to think I have the compassion, but I don't that empathy for, you know, taking a really good situation, and what from the outside looks to be - Right, right. - throwing it in the trash. - Yeah, so okay, so let me, and this is really, I think, important because I also had to come to an understanding of this, and I feel that I have in my 20 years of seeing these patients. And of course addiction is a spectrum disease, - Sure. - right, and so you've got the severe end of things. Imagine that you had an itch somewhere on your body, okay. And it was, I mean, we've all had that, like, you know, whatever the source, it was super, super itchy. You can go for, you know, if you really focus, you could go for a pretty good amount of time not scratching it, but the moment you stopped focusing on not scratching it, you would scratch it. And maybe you'd do it while you were asleep, right. And that is what happens to people with severe addiction. That balance is essentially broken. Homeostasis does not get restored, despite sustained abstinence. They're living with that constant specter of that pull. It never goes away. So let me say, there are lots of people with addiction for whom that does go away. And it goes away at four weeks for many of them. But in severe cases, that's always there and it's lingering, and it's the moment when they're not focusing on not using, it's like a reflex. They fall back into it. It's not purposeful. It's not because they want to get high. It's not because they value using drugs more than they do their family. None of that. It's that really they cannot not do it when given the opportunity, and that moment when they're not thinking about it. Does that make sense? - That's a great description and actually in that description I can feel a bit of empathy, because the way you described scratching an itch in your sleep. - Yeah. - You know, I've done that with mosquito bites and some of them, - Right. - you're scratching, you know, like you wake up scratching that mosquito bite. And I also have to admit that I've experienced not feeling like I want to pick up my phone because it's so rewarding, but just finding myself doing it. - Yes, of course, yes. - Like I'm not going to

use this thing, I'm not going to use this thing, and then just finding myself doing it, like what am I doing here? - Yes, right, right. - Sort of the how did I get back here again? - Yes, right. - And I know enough about brain function to understand that we have circuits that generate deliberate behavior. And we have circuits that generate reflexive behavior. And one of the goals of the nervous system is to make the deliberate stuff reflexive, so you don't have to make the decision, because decision-making is a very costly thing to do. - Exactly. - Decision-making of any kind. - [Anna] Right, right. - So that does really help. I want to just try and weave together this dopamine puzzle, however, because if by week, so first phase of this 30 or 40 day detox, it's like a dopamine fast, - Right. - right, okay. First 10 days are miserable. Middle 10 days, the clouds are out, there may be some shards of sunlight coming through. And then all of a sudden sun starts to come out, it gets brighter and brighter. Why is it then that people will relapse, not just after getting fired from a job or their spouse leaving them, but when things are going really well? - Yes. - Is it this unconscious mechanism? 'Cause I've seen this before. They have a great win, I have a friend who's a really impressive creative. I don't want to reveal any more than that. And relapsed upon getting another really terrific opportunity to create for the entire world. And I was like how can that happen? But now I'm beginning to wonder, was it the dopamine associated with that win that opened the spigot on his dopamine system? Because it happened in a phase of a really great stretch of life. - Yeah, right. Yeah, so you raise that great point about triggers, right? And triggers are things that make us want to go back to using our drug. And the key thing about triggers, whatever they are, is they also release a little bit of dopamine, right? So just thinking about whatever the trigger is that we associate with drug use, or just thinking about drug use, can already release this anticipatory dopamine, this new little mini spike. But here's the part that I think is really fascinating. That mini spike is followed by a mini deficit state. So it goes up and then it doesn't go back down to baseline, it goes below baseline tonic levels. And that's craving, right? So that anticipation is immediately followed by wanting the drug. And it's that dopamine deficit state that drives the motivation to go and get the drug. So many people talk about dopamine as not really about pleasure, but about wanting and about motivation. And so it is that deficit state that then drives the locomotion to get it. - And earlier your description of dopamine being involved in the desire for more, giving the sense of reward, but also movement. - Right. - I have to assume that those things are braided together - Yes, yes. - in our nervous system, for the specific intention of when you feel something good, then you feel the pain. - Yes. -



But maybe you don't notice it. And then the next thing you know, you're pursuing more of the thing that- - And I love the way you use the word braided together, that's beautiful. And let me also just say, something that I find also fascinating in my work with patients, and I see this all the time. There are people for whom bad life experiences, loss, you know, in any form, stress, in many different forms, that's a trigger, but there are absolutely people for whom the trigger is things going well. And the things going well can be like the reward of the things going well, but very often what it is is the removal of the hypervigilant state that's required to keep their use in check. So it's the sense of I want to celebrate, you know, or I want to, this reward happened, I want to put more reward on there. And it's really really fascinating because when people come to that realization about themselves, that they're most vulnerable when things are going well, that's really a valuable insight because then they can put some things in place or barriers in place or go to more meetings or whatever it is that they do, you know, to protect themselves. - Along those lines, I have a friend 40 years sober, was a severe drug and alcohol addict from a very young age. Really impressive person, does a lot of important work in the kind of at-risk youth community out in Hawaii. And he said something to me, he said, as former addicts often do, they've got these great sayings. But I think it fits very well with what you're describing. He said, you know, no matter how far you drive, you're always the same distance from the ditch. And I said well that's kind of depressing, and he said no, that's actually what gives me peace. - Yeah. - Because what would happen is for so many years of relapsing and relapsing, recovering and relapsing, he felt like it was hopeless. And then somehow conceptualizing that the vigilance can never go away, instead of making him feel burdened, - Yeah. - it made him feel relieved. So I often think about that statement, you know, no matter how far you drive, you're always the same distance from the ditch, because in my mind I conceptualize that as gosh, that's a tough way to drive down the road. But actually, on a road where you know where the ditch is and where you know where the lanes lines are, it's actually a pretty nice drive. It's when you don't know where the shoulder is, that you constantly have to be looking around. So there's this, we're speaking now in analogies and imagery and science. But I, one of the things I find so incredible about this community of 12-step, and there are a variety of them, are the communities that they create for themselves, and some of these sayings, which I do believe link back to really core biological mechanisms. - Yes, yes. - I do want to ask about those communities. I have a question which might be a little bit controversial.

## 01:07:40 Can People Get Addicted To "Sobriety"?

- Great! - Which is, is it possible that people who were addicted to drugs or alcohol or gambling, or some other behavior, get addicted to the addiction community? Because one thing that I think I observe over and over is that there's some circuit in the brain of human beings that has to tell you about the dream they had the night before, for whatever reason. There's another circuit that leads people to wake you up, if they themselves can't sleep. I don't know what circuit it is. I'm being facetious here. But there does seem to also be a circuit in the brain of addicts to discuss and want to kind of talk about their recovery a lot. And I mention this not to poke at them, but rather the opposite, because I think that one thing that is challenging, at least for me, and having friends that have a propensity for drug or alcohol addiction, not all of them, but certainly some of them, is when they're talking about their recovery, I feel like it's all they talk about. This meeting, that meeting, that meeting. So what I'm really asking here is that, can we become addicted to sobriety? - Right. So this is a great question and it links into some of the other things we've been talking about, having to do with where do we settle out, you know? What is the way to live between pleasure and pain? And I implied earlier that ultimately we want a resilient balance that's sensitive to pleasure and pain, but that can easily restore homeostasis after we indulge, even when we indulge greatly. But the truth of the matter is that people with severe addiction, I believe temperamentally want those extremes, and they're wired for that kind of intensity that is more than just these slight adjustments around the fulcrum, right? It's like they want the big highs and the big lows. - They'll say great meeting. - Yeah, right, right. - They're like that was such an amazing meeting. Or they find a group, - Right, yeah. - They find a group in a location. - Yeah. - This is almost an inside joke in those communities. Again, I'm not reporting, I'm not talking about a friend in quotes, this isn't me reporting. They'll talk about how attractive people are at a given meeting, or how bonded they feel to people at a given meeting. - Right, right. - That the meetings themselves - Right. - become their own form of dopamine hit. - Yes, yes, yes. - And again, I'm not being disparaging, I just, I want to understand this. - Right, so yes, so a lot of times patients will say to me, oh, you know, I don't want to go to AA. It's a cult. And my response to that is because it's a cult is exactly why it works, okay. Because yes, it is much better for you to be addicted to AA and to recovery, than almost any other addiction I could think of. And we know from Rob

Malenka's work, who's here at Stanford, that oxytocin, you know, is the hormone that's involved in human pair bonding and relationships and love. And it directly links to dopamine neurons and causes the release of dopamine. So yes, when we connect with other humans, especially in a kind of transcendent spiritual way, that's a huge dopamine hit. And it does replace the dopamine that people get from drugs. And for people who have this addiction temperament, they need it on a more intense level. They're not going to be generally satisfied with kind of, you know, a sort of acquaintanceship, right? They want that intensity of the intimacy that you get with people when you're cathartically exposing, you know, warts and all. So yes, people can get addicted to recovery, and good for them. Go for it, you know. And of course this can be disruptive for friendships and relationships, where the one person is not in recovery. Like you're going to so many meetings, you're always talking about recovery, but you know what, much better than them being intoxicated, right? I mean, so although you may tire of your friends talking about their meetings all the time, I'm sure you would rather have them do that

01:11:45 Are We All Wired for Addiction?

than, you know, be in their addictions. - Absolutely. And this is now the second time you've done this through this discussion, but now I have empathy because the way you describe their enthusiasm about meetings, - Yes. - is probably the way that people feel about me and work. - Yes, right. - In neuroscience. - Yes. - I mean, I've been getting up in front of the class since I was eight years old and talking about things I read over the weekend. Now I just happen to have this thing called a podcast. - Right. - I've been doing it since I was a little. And it annoys a lot of people, right. I've learned to suppress it a little bit. Some people like it, but I'm poking fun at myself just to say that I now can understand that the way I feel about the reports about yet another amazing meeting or, or for there's a different form of this. But there's some people for which they just love intense experiences. - Yes. - They're always like trying to pull me off to Bali because they're talking about how sensual it is all the time, I'm sure Bali's wonderful. But there's this kind of ratcheting up, it's like seeking Burning Man all year long. - Right. - I've never been to Burning Man, no desire to go to Burning Man. But inside of academia I mean if I were to just turn the mirror at myself, inside of academia, or here in Silicon Valley, work, and the - Right. - pursuit of more success, even if money is kind of divorced from that, sometimes it is sometimes it isn't. Academic work is, you know, for sake of pursuit of

knowledge. It sounds to me like the same mechanism. In fact, it feels to me very much like the same mechanism. - So Andrew, here's what I love about you. First of all, you're willing to bring your own flaws and foibles to this conversation. - Well they're everywhere. - Well, you know what, it's wonderful. And then you're really open and curious and wanting to understand, 'cause I can't tell you how many people I have met who really see addiction as some kind of otherness. But the truth is we're all wired for addiction. And if you're not addicted yet it's just, it's right around the corner. Do you know what I mean? Especially with the incredible panoply of new drugs and behaviors that are out there. So I love that you're willing to take a moment and really try to understand this, because it is, we can all relate, and you're relating it to your, essentially your work addiction is right and apt. You just happen to be addicted to something that is really socially rewarded. You know, you figured that out at an early age. Oh, when I do X, Y and Z, all these people go look at that smart kid, or whatever it is, you know. - Well for me, it made me feel safe. - Okay. - I felt like. Yeah, I just felt like this, and I pause there 'cause it's like, it's like peace. I'm like ah, I can relax for a moment. - When you're talking about neuroscience? - Or just when I feel like I'm on the right path. - Yeah, okay. - And I'm onto something. Or if I see something that I'm excited about, - Right. - I'm like, I feel filled with, it must be dopamine. - Yes. - I feel flooded with pleasure, literally from head to toe. - Right, yeah. - And then my next thought is more. [laughing] - So true, you're a true addict. - Okay, thank you. - You are. You are. But you just got really, - I think thank you. - you really got lucky with the fact that what you're drawn to is adaptive, essentially, you know. And then your challenge is going to be that your life doesn't get too out of balance in the sense that you're 24/7 working, you don't stop and do some other things or think of- - And my life, admittedly, is somewhat asymmetric. I mean it has other components of physical health, et cetera, but it is somewhat asymmetric. Which is why I got a dog. Although I talk about him an awful lot, so. - But the dog is good because that draws you out of yourself and a little bit away from the work. But again, you know, I think the key here is for people who feel like they don't, they've never experienced addiction or they don't know anybody with addiction, or if they do, they don't get it, just think of that one thing that is the most important thing in your life that you do, that gives you pleasure and meaning and purpose. And then imagine if you couldn't do it. - Oh yeah, let's not talk about that. - [Anna] Right.

01:15:57 Bizarre Addiction

- Well I appreciate the feedback and you can send me a bill at the end. What is the most ridiculous sounding addiction that you've ever witnessed, that was actually a real addiction, along these lines. Because I think we all know the standard heroin, pill. You've been very, I should mention, because it's important, your previous book, and we will provide a link to that as well, focused on the opioid crisis and what we thought was medication. It turned out to be just as bad, if not worse, than a lot of so-called street drugs. So we understand those, you know, gambling, sex addiction, porn addiction. Now video games. We'll talk about social media a little bit more in depth. But what's the most like, wow, I didn't realize people could get addicted to that? - Water. - Really? - Really. So I had a very lovely patient who was, had a severe alcohol addiction, and she got into recovery from her alcohol addiction for many years. But she kind of had a sort of a polydipsia, or an urge to be drinking something a lot. And so she drank a lot of water and slowly, over time, she realized that if she drank enough water, she could become hyponatremic and delirious and be out of herself. - You can die from it, right? - Right, which is, she just wanted to be out of her own head. And so she would periodically intentionally overdose on water, in order, you know, to, I know, it was so sad, so sad. - What happened to her? - She eventually took her own life. - Wow. - Yeah, it was really. - That's rough. - She was a lovely woman. She was so bright. She had so many interests and passions, and of course it was very sad when, you know, when she died. But that was a wow to me, it was like wow, if you have this disease of addiction, you can even get addicted to water. - Wow. And I think it just underscores the generalizability of the circuits. - Right. - There isn't a brain circuit for addiction to water that she happened to have. There's a brain circuit for pleasure and pain and addiction, and water plugged into that circuit. - Right, right. - Wow.

01:18:14 Recovered Addicts Are Heroes

That's intense. In your book, "Dopamine Nation", you also describe some amazing paths to recovery. People that, you know, from reading it I would, I won't say which ones and who 'cause there are some great surprises in the book too, both tragic and triumphant, as they say. You've often described your patients as your heroes. - Yeah. - Yeah, tell us a little bit more about that. - You know, when you think about how hard it is to give up a drug or a behavior that you're addicted to, how much courage that takes and fortitude

and discipline, and stick to it-ness, these people are really amazing people. I mean that's, I don't know that I could do it, what they do, you know. And like, you know, we talked a little bit about just the constant ever-present urge to use, even after sustained periods of abstinence for some people. That's really really hard. And of course then you double down on the shame that they feel, because of that urge, even when their lives are so much better. I mean these people are really, really remarkable. And you take their remarkable accomplishment and then you imagine the world that we live in now, where we are constantly invited and tempted and really bombarded with opportunities to become addicted- - It's like feeling an itch everywhere. - Oh yeah, I mean you can't escape it. You know, you cannot escape it. That you'll get an email in your inbox inviting you to do X, Y, or Z. And if you're addicted to that thing, you know, you try to like delete all your apps and not go here. All of a sudden your work inbox, you know, you're getting those images, let's say. Really, really, really hard. And yet these people find a way to do it. I think it's absolutely amazing. And they're really wise people. They have so much wisdom to offer. They've taught me a lot. You know, as I talk about in my book I have my own addictions,

01:20:10 Lying, Truth Telling, Guilt & Shame

and I really just like took a page right out of their, I was okay, what do I do now? All right, what did this patient do, what did that, okay, I'm going to try that. - It is an amazing community - Yeah. - of people, they are very sage. I wanted to just touch on something that you mentioned, which is the shame. - Yeah. - You know you can't go to a meeting, or talk to addicts, without detecting or hearing about like lies, shame, et cetera. I heard you say in an interview with somebody else recently that truth-telling and secrets are sort of at the core of recovery. And yeah, tell us more about that. - Yeah. So one of the things that I found really fascinating about working with people in recovery, was how telling the truth, even about the merest detail of their lives, was central to their recovery. And I became really curious about that. Like why would truth-telling be so important? And of course there is the obvious thing that when people are in their addiction, they're lying about using, you know. So part of getting into recovery is to stop lying to the people they care about, about their use. But it's really more than that because what people in recovery have taught me is that it's not even just not lying about using drugs. I have to not lie about anything. I can't lie about why I was late to work this morning, which we all

do all. Oh I hit traffic, no I didn't hit traffic, I wanted to spend two more minutes reading the paper and drinking my coffee, right. Or just lying about, you know, I don't know where I had dinner. Like, so people with addiction will get into, you know, the lying habit where they're lying about random stuff, 'cause they're sort of in the habit of lying. And how recovery is really about telling the truth, you know, in all ways. And so one of the things that I, I had a lot of fun with in writing the book, is sort of exploring the neuroscience around why truth-telling is important to leading a balanced life. And we know like every religion, since the beginning of time, is all about telling the truth. Well why, right? And there's really interesting neuroscience behind it that suggests that when we tell the truth, we actually potentially strengthen our prefrontal cortical circuits, and their connections to our limbic brain and our reward brain. And of course, these are the circuits that get disconnected when we're in our addiction, right? Our balance, in our reward pathway, our limbic brain, our emotion brain, is doing one thing, and our cortical circuits are completely disengaged from that, ignoring what's happening, which is easy to do because it's reflexive. We don't need to think about that balance for the balance to be happening. But we have to re-engage those circuits, anticipate future consequences, think through the drink, you know, not just how am I going to feel now if I use, but how am I going to feel tomorrow or six months from now? And that telling the truth is in fact a way to do that, to make these connections stronger. And there I talk about some studies in my book that kind of indirectly show that. So I find that really fascinating, plus just that like being open and honest with people really does create very intimate connections, and those intimate connections create dopamine. So we were talking a little bit about how you know a bunch of people who need like intensity in their lives. For me, I need a lot of intensity in my human connections. Like I'm really not interested in, and bored by and made anxious by, casual interactions. But you know, like having this kind of discussion with you, that's very intense and also intimate and self-disclosing, is very rewarding for me. So that's an important source of dopamine. Thank God I became a psychiatrist. - Yeah, absolutely. - Like I can't disclose all my stuff, but I am quite transparent with my patients, which is a slightly unorthodox. But, you know, when I think it's right, I'm also transparent with them. So that's, you know, that's a source of dopamine too, when we're honest and we disclose. You think people are going to run away from you, if you tell them about all like your weird neuroses, but really they don't. What they're like is oh thank God, I'm not the only one, right. - What I love about, I love many things about your book. I read it in one sweep. - Oh thank you. - And I was like wow. I was pleasantly

surprised, but I was like wow, she's really opening up in this book, from the very beginning. And I don't want to give it away, but it's yeah, you're very open where it's appropriate. And also I think that this question about truth-telling, I always think about like tell the truth, be a hundred percent about the truth, but there's also this element about do you report previous lies, right? What about prior behavior? And I'm fascinated by this 'cause to me telling the truth has many facets, but the three sides of this thing in my mind, are one is reporting everything accurately. The other is what do you withhold, what do you not withhold, right? Because some people say tell the truth, or at least don't lie. That's sort of a- - Lies of omission, right. - Yeah, so lies of omission. Lies of omission. And then there's the, what I have to assume for most people, is a small to enormous batch of things that they lied about in the past, that still thread into the future. - Right. - So how important is it for the addict, or every person really, to, 'cause it sounds like cultivating the circuitry between prefrontal cortex and the dopamine system would be great for anybody. Since we're all addicts, - Right. - everyone should do it. But in all seriousness, it sounds like a good thing for everybody to do. How much work needs to be done on all the priors, all the stuff we've hidden? I mean not me, but all the stuff that everybody else has hidden. - Yeah, so the, you know, the steps of the 12-steps of Alcoholics Anonymous, a good number of those steps are about that very thing. The past, the ways that we've harmed people in the past. And the fourth step is about making amends, you know, by admitting the ways in which that we've contributed to harming others. And it is a really big piece of recovery. So, you know, how important, so for people with addiction, it's really, really important to go back and make amends. And, you know, the key idea there is you just go back and you apologize, you know, and you don't have to get any particular kind of response, or you don't need to be forgiven. It's the act itself of apologizing about the ways in which we've harmed or lied to people in the past, that is cathartic and renewing, and allows us to kind of shed this skin and be new in our lives and begin again. Sort of absolved, you know, of past sins, so to speak. So it is really important. You know, are there situations when it's maybe not a good idea, because of that person or the nature? Sure, you know, there are always going to be, it doesn't have to be like, it's not, we're talking about not like Kant's idea about I'd never lie, robbers in your house. You're a stowaway. You can't lie even about that. It's like no, there are probably situations where, - Absolutely. - you know. - For sake of other people's safety, - Right, and- - children's safety, sure. - Right, I mean there are, you can think of a million scenarios. But in general, you know, when we're taking stock, because I



don't know about you, but I have a lot of regrets and guilt about a lot of things in my life. And they kind of haunt me, you know. It means I'll have nightmares, right. And I think that's true for most people. I mean I occasionally will meet somebody who's like I don't have any regrets in my life, I'm like wow. Like I cannot relate to that at all. So, you know, this idea of like catharsis and, well, I mean, in the 12-steps it's telling God, or your higher power, telling another human being, the ways in which you've wronged others. Considering your own character defects and how those have contributed. To me, that's a really important piece and something that we don't do enough in our current culture. Especially in psychiatry, frankly, where there's like a lot of eternally empathizing with patients, but not a whole lot of likes going well, you know, actually you kind of messed that up. Or like that was really bad on you, you know. And in my work, I don't necessarily use that language, but, you know, patients might say like I really feel badly about, you know, this thing. I'll be like yeah, I get it. I understand that you feel. - Well guilt is a- - [Anna] Right. - There's a circuit for that too. - Right, and it's important, right, and it's also important to recovery and to not becoming addicted. Experiencing a certain amount of appropriate shame for things that we have done and, you know, feeling the pain that comes with shame, which is an incredibly painful emotion, right. And I think that may be the one that we all try to avoid more than any other, is like that shame of not being liked or not being accepted or not being celebrated. - Or the thing that we did is really despicable. - Right, it's really, yeah, like oh my God, I did that horrible thing, right, right. So, I mean, I've done horrible things that I haven't gone back and said I did this horrible thing, but I'm, maybe I've tried to pay it forward. Like I've told my kids, you know, when I was younger I did this horrible thing and it still haunts me. So if you're ever tempted to do something like what I did, you might think about my situation. So, you know, some kind of way. But I think wrestling with that is important. - I think it's a really important element to all this, and there's not, I love that there's neuroscience being done on truth-telling, - Yeah. - and the value of truth-telling. - Yeah. - I think, if I were to predict a new and truly exciting area that people are going to be really curious about, in this huge sphere we call neuroscience, I hope they'll continue to do more work. Also, I'm so glad to hear that's happening here at Stanford. - No that's, the literature that I look at isn't Stanford work, but there's work. - Great. - It might be people at Stanford. - Great,

01:30:40 Clinical Applications of: Ibogaine, Ayahuasca, Psilocybin & MDMA

regardless of where it's happening. More of that and all the rest please. I want to ask you about using drugs to treat drug addiction. These days there's a growing interest, or at least discussion about ibogaine. People going down, going out of country, because I think it's still illegal here, or is illegal here, going out of country to, I dunno, either inject it or smoke it or whatever it is. Or people going and doing Ayahuasca journeys or MDMA, which is still an illegal drug in this country, but there are clinical trials. There are people on this campus doing experimental studies. I don't know of clinical trials, but at Johns Hopkins there are clinical trials, et cetera. So this is a vast area, right? Different chemistries for different drugs and different purposes. But the rationale, as I understand it, is take people who are in a pattern of addiction, launch them into a experience that's also chemical and extreme, often of the extreme serotonin and or extreme dopamine type. So MDMA, - Right. - ecstasy for instance. Tons of serotonin dumped, tons of dopamine dumped. How neurotoxic, if neurotoxic, debatable, et cetera, et cetera. Not a topic for now. But a lot. And then somehow that extreme experience wrapped inside of a supported network in there, whether or not there's just someone there or whether or not they're actively working through something with the patient, is supposed to eject the person into a life where drug use isn't as much of interest. This violates, at a purely rational level, this violates everything we've talked about in terms of dopamine biology. It would, if this arrangement is the way I described it, cause more addiction, is anything but a dopamine fast, it's a dopamine feast. So we hear about successful transitions through this, at least anecdotally, and maybe some clinical studies. What is going on? What is going on? It doesn't make any sense to me. Yeah. - Yeah, so I think it's good that you're skeptical. I think we all should be skeptical. Having said that, there are clinical studies showing, you know, and these are small studies and they're short duration, small number of subjects, but, you know, taking people for example, who are addicted to alcohol, and then having them have this, let's say a psychedelic experience in a very controlled setting. - So either, typically it's a high dose psilocybin, or three dose, as I saw it for the MAP study of MDMA. - Right. - Of ecstasy. Those are sort of the, seem to be the kind of, - Yes, the typical, right. - the kind of bread and butter of this kind of work. - Right, right. But the thing to really keep in mind is that this is completely interwoven with regular psychotherapy, and that these are highly selected individuals. - In clinical trials. - Right, right. And these are clinical- - we're referring to legal clinical trials. - Right, right. And so, you know, I think the metaphor that helps me think about this is there are many ways to the top of the mountain, and these are sort of like taking the gondola instead of

walking up. It sort of, instead of doing like a year of psychoanalysis where you're sitting on the couch every week reflecting on your life, it's a condensed version of psychoanalysis or psychotherapy, plus, you know, MDMA, which gets you there faster. - And creates the intimacy, presumably, because of the- - Well I think the main thing that happens when it's beneficial, is it just allows the person to get outside of their own head and look at their lives on a much broader sweep, and to consider themselves not mired in the quotidian sort of details of their life, but rather as a human on the large planet Earth, in the vast universe. So I think it takes, it's like when it works, it's a transformational experience because it gives the person another lens through which to view their lives, which I think for some people is positive and powerful, because they can come back from that and be like oh my gosh, I care about my family, and I don't, I want X, Y, or Z for them. And I realize that my continuing to drink is not going to, you know, achieve that. So it's almost like a spiritual or values-based. So I think it can be very powerful, but having said that, I truly am quite skeptical because, you know, addiction is a chronic relapsing and remitting problem. It's hard for me to imagine that there's something that works very quickly short-term, that's going to work for a disease that's really long-lasting. - Yeah, the two addicts I know that did MDMA-assisted psychotherapy as part of this thing, both got worse. - Yeah. - But the people I know who had severe trauma who did this, who took this approach, seem to be doing better. - Okay, interesting. - And so I, I think that the discussion, as we hear it now, is just sort of psychedelics, which is a huge category that includes many different drugs and compounds with different effects. And we hear about trauma and addiction lumped together. And I think that I'm a splitter, not a lumper, as we say in science. And I think it's going to be important for people to know that this is definitely not a one-size fits all kind of thing. But it sounds like it may have some utility under certain conditions. - Yeah, I think so. I'm trying to be very open-minded about its potential utility for certain individuals. But I can tell you in my clinical work, what is a very concerning unintended consequence of this narrative, is I have a lot of people who are looking for some kind of spiritual awakening who on their own, not in the context of any kind of therapeutic, psychological work, you know, microdose or want to try psilocybin or MDMA with a friend or wherever, so they can have this spiritual experience that they can figure out their lives. That's a disaster and almost never works out well. And I've then had people who literally, supposedly you can't get addicted to psychedelics because, you know, something with the biochemistry which I don't fully understand, 'cause it doesn't make

any sense to me. But I have patients clinically who definitely are addicted to, you know, MDMA, to micro-dosing. So that's very concerning to me 'cause like, you know, Pollan's "How to Change Your Mind", I respect that work, but on the other hand, it's penetrated the culture- - Michael Pollan's book. - [Anna] Yeah, yeah. - And I don't know him and so I don't have a problem taking a stance. So I'll just say my stance on that is the narrative of popular authors can expand and wick out so fast, - Yes. - that pretty soon people are essentially taking their mental health into their own hands. And I actually, I have great optimism for this business of clinical use of psychedelics, including MDMA. Matthew Johnson at Johns Hopkins is doing fabulous work on this. And there are others too, of course. But those are controlled settings. - Right. - And the pharmacology is being tuned up. And one thing that I think is coming. There are several papers published recently in great journals like nature and science, et cetera, where there are scientists who are removing the hallucinogenic components of these drugs and finding that they still have the antidepressant effects. - Interesting. - And so the experience of a psychedelic, and the long-term effects of the psychedelic, might actually be dissociable. And so, again I, and I'm always careful to say I'm neither for something or against it. I just think that treading carefully is what's important. - I agree with you, and I can just tell you that the downstream effect for the average person, many of whom present in our clinic, is that they've misconstrued the data on the use of psychedelics for mental health conditions, to this idea that they're safe, or that anybody can take them in any circumstance and have this kind of awakening. And that's not what the data show, right? The data are these highly controlled settings, you know, carefully selected patients. So that's my worry, you know. - Sure. And I'm going to be sitting down with Matthew Johnson at some point, and we'll discuss this. And I think that, ah, that care and that cocoon of real clinical care, does seem to be an important component. - Yes. - Well I'm glad we could touch on it and, you know, I'm sure I'll get a bunch of comments telling me that, you know. But I think it is important to explore things from all sides, and that's what we do, as scientists. - Yes. - And if Michael Pollan wants to chat, we can do that too. That's fine. I very much enjoyed the book actually. - Yes, yes. - But I think that people run with ideas. - That's right. - They don't walk with them, they sprint. - That's right, right.

01:40:20 Social Media Addiction

Yeah. - There are a couple other things I just want to touch on, but they all relate to

social media. - [Anna] Okay. - You were featured in "The Social Dilemma". It was a powerful movie. I think many people avoided seeing that movie because it reflects back on us just how addicted we all are and how manipulated we all are. - [Anna] Yes. - But it doesn't seem to have changed behavior much. I have to say that the movie changed my understanding and my perception, but not my behavior too much. If we look at addiction as a maladaptive thing, something that's making our lives worse or us less functional at work and in relationships, I could imagine a version of social media where it's making me more connected. I mean this is a podcast after all. - Yes, yes. - I post videos. This will show up on YouTube and elements of it on Instagram as well. So much like sugar or other things, I have to imagine that we need to regulate, not necessarily eliminate, this behavior. So I want to talk about what that looks like. And I want to talk about what you've referred to as this narcissistic preoccupation that social media is creating. That we are all far more keenly aware of how we look and how we sound and how we are being perceived, than we were 10 years ago. - [Anna] Right. - So first of all, social media, how addicting is it really? And what is healthy social media behavior? - So the first message I would want to get across about social media, is that it really is a drug and it's engineered to be a drug. And it's based on, you know, potency, quantity, variety, the bottomless scrolls, the likes, the way that it's enumerated, all of that. Which doesn't mean that we can't use it, but we need to be very thoughtful about the way we use it, just like we need to be thoughtful about the way we use any drug. And so that means with intention and in advance, planning our use, right. And trying to use it as a really awesome tool to potentially connect with other people, and not to be used by it or get lost in it. And of course, you know, people are going to come with different propensities for addiction to any drug, and that's true for social media too. Some people will have no problem using it in moderation or using it in a way that's adaptive. And other people will immediately get sucked in. And the key thing about getting addicted is when it's happening, nobody who's getting addicted thinks they're getting addicted, right. Let's face it, it's only after the fact that we go woops, you know, what was that about? - Remember texting and driving, there are all these books about texting and driving, how terrible it was. - Yeah. - Even the governments have largely given up. You see these billboards - Terrifying. - like don't text and drive, or any text can wait, or whatever. Not worth dying for. - Right, right. - But everybody's texting and driving. - Right and if you look at young people today, teenagers, I mean they're basically cybernetically enhanced, that the phone is there. You know, it's like they're talking to you and texting 12 friends at

the same time, and there's no stopping it. I mean the genie is out of the bottle where, you know, we're not going back. - [Andrew] Right. - So we do need to figure out, you know, how to make this tool something that's, you know, going to be good for us and not ultimately harmful. And I don't have all the answers by any stretch of the imagination, but I do think, you know, some of the wisdom that we have learned from using other drugs, also applies to social media. Which is to say that we have to, again, put barriers in place that allow us to remain in control of our use, which means not too much, you know, not too often, not too potent. - Do you think in, going back to this idea of the unit of the day being a good attractable unit, a manageable unit of time for most people, so you're saying in advance, so allocating two hours in which you're going to allow yourself to have free reign use of the phone and all its apps and all its things, or even more restricted than that, meaning okay, I'm only going to allow myself 30 minutes a day to post and comment, and then that's a closeout completely. - Yeah, so I think it's, it depends on the person and sort of a combination. We talked earlier about, you know, having an itch and scratching yourself at night. We've gotten to a point with smartphones, people are pulling them out and they are utterly unconscious of doing so, pulling them out, you know, a couple of texts, a couple. They don't know they're doing it! - I have a friend who works in, delivers babies, and many pregnant mothers won't actually deliver without their phone in hand. And this used to be the hand that was connected to their spouse. This may be a comment on spouses more than on phones. But it sounds like it's a kind of a security blanket of sorts. - Right, like a transitional object, yeah. - Actually that reminds me, you've referred to the phone, I think it's the phone, but maybe it's our online persona or ourselves, as we've become sort of infantile in our need for, it's like a baby and a bottle. - Right, right. - And so I do wonder if we have regressed, and I do think we've regressed a bit in terms of our online behavior. Our inability to act like. I always thought an adult was somebody that can control their behavior. - Yeah. - That's the difference between a baby and an adult. You don't have to be a developmental neurobiologist for very long to understand that a young organism can't control its behavior, an older one can. So to me, a mature organism, mature in years organism that can't control its behavior, is a baby. It's an immature version of itself. And there's neuroscience to support that statement. I look at my own behavior with the phone sometimes and I think, I'm a grown man. Like what is the problem here, right? You know, I don't eat baby food, but I'm acting like a baby with the phone, all right, in the sense that I'm reflexively picking it up, I'm not being intentioned and deliberate with it. Do

I need a full 30 days, Anna? - So yes, so- - 30 days away from my phone? - As you know, that's my recommend, the full 30 days to reset. If you're severely addicted, I recommend the 30 days. But if you're just a little bit addicted, like most of us, you probably don't need 30 days. In fact, a single day, not only would be challenging, but probably may be sufficient. - My phone is off for substantial segments of the day. - Okay, that's great. - And it drives other people crazy. People expect me to respond. But I don't care. - Yeah, right, right. - I really don't. And I actually take a little bit of pleasure in the fact that, well, because I think the point I'm trying to make is the right one, which is that it's not just right for me, but like why, I don't see a clause on text messages or emails that say must be responded to within X amount of time or else, or else. So I take the liberty of replying when I'm able to. - Yeah, that's right. - Or want to. - Right, which touches on one of the big challenges about social media, is that as more and more of us are spending more and more time on social media, we're divesting our libidinous energies, et cetera, from real-life interactions. So that means even when we want to choose to not be online connecting, we go outside and there's no there there, right. There's nobody else there. So I think our collective challenge, and it should be our mission, is to make sure that we are preserving and maintaining offline ways to connect with each other. 'Cause if we don't do that then we'll be very lonely, right, if we were not online. But if you have a tribe of folks that you can be with, none of whom are on their phones while you're together for that discreet amount of time, then it's wonderful and liberating and nobody's distracted. And I think that's really the key. And I think young people are figuring that out, you know. They're trying to create these spaces or try to, let's say, instead of doing a dopamine fast by yourself, do it with your friends, right. Then there's the FOMO is less, the fear of missing out because, oh you're all doing the dopamine fast together. So these are some of the tricks that we can come up with. - I like that. - Yeah, okay good. - I like that. I don't allow, I have a home gym and I love working out. I just enjoy it and always have. And I don't allow my phone in my gym anymore. - Right. - And I live in an area where I don't get any reception, like two meters outside my door. So all my dog walks now are just, and they were boring as hell. - Yes. - I also have a bulldog, he doesn't like to walk. It's really slow. And it was so boring for a while - Yes. - because I was so used to taking calls while I walk, - Right. - and it's super efficient when I do that. The walks now are some of my favorite part of the day, - Yeah, right. - because, and if the phone, if I were to get a call on one of those or they brought reception of the areas, I would be very dismayed. - Yeah, right. - So I can attest to this,

and I don't think I'm a phone addict, but I do put work into regulating my phone behavior.

- Yeah, so this is the key. You have to, with intention, prior to being in that situation, think of literal, physical and metacognitive barriers that you can put between yourself and your phone, or whatever your drug is, to create these intentional spaces where you're not constantly interrupting yourself, essentially, and distracting yourself, because I really do think, you know, I think we talked just before we started with the interview, you know, we're losing the ability to have a sustained thought, right? I mean we get so far and then, then you get to that point in the thought where it's a little bit hard to know what's coming next. And it's very easy to check your phone or check your email, or look something up on the internet. And then you never get that opportunity to finish that thought, which is really the source of creative energy and an original thought, right. You're not just reacting to what's coming at you. - Right, and something that could contribute to the world. - That's right. - I'm a big believer that you're either consuming or you are creating. And there is, I should mention, it's important, I do believe in neutral time. I think sleep is great. I'm a big proponent of sleep and I've talked a lot about it on the podcast, I care a lot about sleep. And not just for sake of performance. I actually just really like sleep. I think that being a constant consumer of visual information and information of all kinds, can be a problem. But there's some really great sources of information

01:51:25 Narcissism

on the internet. - Yes. - And I certainly benefit from the fact that those channels exist.

Narcissistic pre-occupation. Am I a narcissist? - You know, first of all, there's healthy- - Or is the fact that I asked, does that take me out of, would a narcissist never ask that question? - Oh yes, a highly sophisticated narcissist - Oh I see. - would know to do that.

- Well I'm not very sophisticated. - So there's healthy narcissism, which means that we all invest our personal energies into things that we care about. And if our competence in that arena is threatened, we would all experience a narcissistic injury, and that's normal and healthy. But we are living in a narcissistic culture, I mean that's not news, this preoccupation with individual achievement and individual self-worth and individual self-confidence. And I think all of that is just fueled by social media, where we're not just seeing ourselves, but we're seeing people's reactions to ourselves, and every single, you know, thing we say or do, you know, we get likes and this and that. It's really insidious and it contributes, I think, ultimately to a lot of personal shame, because we're



not really meant to be individuals bouncing around in the universe. We're social animals. And we're probably generally happiest, even for natural contrarians among us, when we're part of a tribe, right. And if we do too much to kind of separate ourselves from that tribe, I think that the brain's natural and instinctive corrective mechanism against that is self-loathing and shame. So, you know, it's so ironic because the culture tells us if we just achieve more, we'll like ourselves more. But the truth is actually the opposite. That I think when people get these pinnacles of personal achievement, you know, you have things like the imposter syndrome or whatever, you know. - Or you just, you know, we're at Stanford after a lot of high achievers. - Right. - Right.

01:53:30 Goal Seeking, Success & Surprise

Some phenomenal, amazing people like yourself and other colleagues of mine that just, I'm always in awe. Like it's just amazing, like the mean is shifted so high. And also people who have amazing paths to get here, coming from very little and accomplishing so much. But it's also the pressure, - Yeah. - right. You know, the way that this career was described to me the day I got my job, was one colleague of mine, the late Ben Barres said, welcome to schizophrenia 'cause you're never going to be able to complete anything without getting interrupted. That was partially true, although I've created buffers. And the other one, very successful scientist, member of the National Academy, et cetera, said to me, you know, just remember, it's pinball. You never win. The best you can do is just keep playing. - Yes, right. - And I thought wow, okay. Okay. And then you just go. - Right. - But I think that as we achieve more, not just academics of course, but as anyone achieves more, there's the relishing in the accomplishment. There's often the desire for more, but there's also the pressure of, well now I have to do this for the next 30 years, even though I love it. It's the pressure of, well, if the mountain is this high, then how do I get here and here and here, and then you start shoveling more dirt on so you can keep climbing. And it's a lot of work. - [Anna] Yes. - And I think that the perception of success is that there's a roar of the crowd and you cruise. You don't cruise. They just give you more to do. - Right. - Or you give yourself more to do. - Well what I think is, at least in my life experience, and I've heard this from other people as well, you know, it's that prize that we're going for, that if we get it is so unsatisfying. And it's the prize that we never imagined that we kind of go, well, how did that happen, but gee, you know, that feels good. And so I'm very, what's the- - It's like a mirage - Yeah. - in the one case. -

Yeah. - It's almost like dopamine can create these mirages. - Yes. - That there's some place there. - That's right. And if I just, it's that pot of gold. If I just- - Constant dopamine. - Right, right, that's right. - Constant dopamine. - And I think, you know, this really, I think, is related to our discussion earlier about this taking it one day at a time, or paying attention to that, you know, 24-hour period in your environment. I am absolutely fascinated by the ways in which we accumulate success, when we do that, totally independent of the desire for success. It's really process-oriented. It's like, where am I today? How can I make today a good and meaningful day, a little bit better, or as good as some other days I've had? Constantly tweaking and experimenting with this experiment that we call our human existence. And when we do that in a way that's authentic and paying attention and value-driven, whatever our, you know, values are informed by, it is very, very interesting how those days again accumulate, and you find, well, I guess I contributed something of value there, but I wasn't trying to do that. You know, I think that's really, I mean, what I'm so amazed by is like, you know, 20 years ago when I went to Stanford Medical School, or 25 years ago, you know, I just, I was happy to just be a good doctor. I was like, I guess I'm just going to try to figure out how to be a good doctor, I'm here to learn that. And now I see these medical students, and they're wonderful. They're brilliant and they're - They are. - well-intentioned, all that. But they're like how can I, you know, write the great American novel, do my startup, go to Africa, apply for that grant? You know, it's like, really, I was just trying to learn how to be a doctor. And it's, as you say, it's a lot of pressure on them. And it's also kind of a weird leapfrogging of the real way to accomplish something. - Right. - Which isn't about like oh how can I accomplish something. It's like, what can I do today that would be of service. Right? And then finding that of trying to be of service, you know, and not really going for recognition, can sometimes lead to what people call success, although that wasn't what you were aiming for. - And it's all the more beautiful when it's not what you're aiming for. - Oh so much better, so much better. - Yeah, I'm a big believer that when one can align their compulsion with some greater good. - Yes, right. - A service to humanity

01:58:10 Reciprocity

or the planet or animals, whatever it is, that's where the really good stuff emerges. Because there's a lot of reciprocity there. The world starts to, you're supporting the world and then it starts to support you in a way that feels very fluid. - And it comes back. Right,

and I mean that speaks to you like your generosity to me, vis-a-vis my book. And I have to say- - Well, I love the book. - I know, it's- - There's like, we're not in a business deal folks. It's just purely that I heard Anna lecture in my course, I wanted to learn more about dopamine. She taught me, I asked her if she would come on the podcast. Turned out she wrote this amazing book. She sent me an advanced copy of the book. I read it in one sweep, it's incredible. And I love it. So just like the eight year old version of me, now the 45 version of myself, I can't stop blabbing about the things I love. - Well it's awesome, but I have to say, I have been surprised by your generosity. It's not something I've encountered frequently at Stanford, which is a wonderful place. But there is a general sense that if I give away to somebody else, I've lost something, which is not the right way to think about it. Not how you are, and also not how the world works, 'cause when we give away to other people, we get back so much more. But it takes a long time and it might not come through that path. - I never think about reciprocity. But I was weaned by good advisers. - That's very nice, - Yeah. - yeah. - I think it just sort of got drilled into me that the more you give, the better your immediate life is. - Yes, yeah. - And I also don't have a long-term vision, you know. I just, I'm just excited about the book. I'm excited that people are learning about the brain and dopamine. I have to admit, having grown up in neuroscience essentially, I did not understand that pleasure and pain were orchestrated the way that they are. I'm very mindful of it now. - Oh good. - And it's changed a number of my behaviors. I know a number of people are going to have questions and want to get in contact with you. You are not on social media. - That's correct, yes. - You are true to your ideology. That's great. - And the reason for that is just, I wouldn't be able to control myself. I mean, that really would be my drug. People are my drug, intimacy is my drug, and I wouldn't be able to manage it. And so just, it was just easier for me to not do it at all, rather than try to moderate it. - Well the book, as you mentioned before, and as I can attest to, is it has a certain intimacy. People get to know you through the book. So definitely check out the book. If you have questions about the book, et cetera, you're welcome to send them my way. I will buffer you from all those questions. I'll filter them. Anna, Dr. Lembke, I should be formal, forgive me, I've been referring to you - No no, that's fine. - as Anna the whole way through, 'cause we're colleagues, but thank you so much for sharing this information. And I know I learned a ton. and I know everyone else is going to learn a lot more about addiction and the good side of dopamine.

## 02:01:15 Closing Comments, Resources

- That's right. Thank you for having me. It's been really, really great to talk with you. - Great, thank you. Thank you for joining me for my discussion with Dr. Anna Lembke. I hope you enjoyed it as much as I did. Please be sure to check out her new book, "Dopamine Nation, Finding Balance in the Age of Indulgence". You can pre-order it on Amazon or any places where books are sold. It's an absolutely fascinating and engaging read, all about addiction and dopamine. If you're learning from, and or enjoying this podcast, please follow us on YouTube by subscribing to the Huberman Lab channel. In addition, you can subscribe to the podcast on Apple and Spotify, and on Apple you have the opportunity to leave us up to a five star review. If you have comments or suggestions for topics for future podcasts, please put those in the comments section below this episode on YouTube. In addition, we have a Patreon. That's [patreon.com/andrewhuberman](https://patreon.com/andrewhuberman). And there you can support us at any level that you like. Please also check out our sponsors that we mentioned at the beginning of the episode. That's a terrific way to support our podcast and our ability to continue to bring you zero cost to consumer information about science and science-related tools. And last but not least, thank you for your interest in science. [upbeat guitar music]